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TRANSACTIONS

OF THE

HISTORIC SOCIETY

OF

LANCASHIRE AND CHESHIRE.

TWENTY-SIXTH SESSION.

THIRD SERIES—VOLUME II.

SESSION 1873-74.

Vol. XXVI.

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This Volume has been edited by the President, under the direction of the Council. The authors of papers alone are responsible for the facts and opinions expressed in their respective communications.

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As the Second Series of the Society's Annual Volumes closed with Vol. XXIV, the next one should have been numbered XXV, or Third Series, Vol. I. This one, therefore, is the Second Volume of the Third Series.

COUNCIL AND OFFICERS FOR 1873-74.

President.

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Vice-Presidents.

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The Mayor of Liverpool.

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Assistant Secretary.

Mr. Charles Dyall, Lyceum, Bold Street, Liverpool.

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LIST OF MEMBERS.

SESSION XXVI, 1873-74.

The first List was dated 23rd November, 1848; all whose names appeared in it are therefore Original Members. Those who have been enrolled as Mayors or Sheriffs have their year of office attached.

The letter P denotes that the Members, in connexion with whose names it occurs, have read papers before the Society.

Those whose names are printed in SMALL CAPITALS are Members of the Council; and in *Italics* are Life Members.

Those marked thus * are Resident. The post town Liverpool is usually omitted.

Those marked thus † are Life Members without payment.

A

P.	12th Dec., 1872.	Abram, W. A., 25, Alma street, Blackburn.
	23rd Nov., 1848.	*Ainslie*, *Montague*, Grizedale hall, Hawkshead, Windermere.
	11th Feb., 1869.	*Amer, Stephen, Bridge street, Birkenhead.
	17th Dec., 1857.	Anderson, Thomas Darnley, Waverley, Farnham, Surrey.
	12th Jan., 1871.	Andrews, Frank, Apsley House, Ashton-under-Lyne.
	4th Dec., 1856.	Ansdell, John, St. Helens.
	23rd Nov., 1848.	Ansdell, Richard, A.R.A., Lytham house, St. Alban's road, Kensington, London, W.
H. Sh. Cheshire,	1857.	*Atkinson*, *William*, Southport.

B

	2nd Nov., 1865.	*BAILEY, F. J., L.R.C.P., 51, Grove street.
	25th Feb., 1873.	Banks, William L., Bodlondeb, Conway.
	8th June, 1854.	*Banning, John Johnson, 20, Castle street.
	7th Feb., 1861.	*Bartlett, William, 22, North John street.
	6th Mar., 1862.	*Bazley*, *Sir Thomas*, *Bart.*, M.P., Manchester, and Reform Club, London, S.W.
P.	6th Dec., 1849.	BEAMONT, WILLIAM, Orford Hall, Warrington, VICE-PRESIDENT.
	23rd Nov., 1848.	*Bell, Henry, Hamilton square, and Grosvenor road, Claughton, Birkenhead.
P.	1st Dec., 1864.	*BENAS, B. L., 5, South Castle street, and 74, Upper Parliament street.

	23rd Nov., 1848.	*Bennett, William, Sir Thomas's buildings, and Heysham Tower, near Lancaster.
	7th Mar., 1850.	Birch, Sir Thomas Bernard, Bart., The Hazles, Prescot.
	23rd Nov., 1848.	Birchall, Lieut.-Col. Thomas, Ribbleton hall, Preston.
P.	8th Jan., 1852.	Birley, T. Langton, Carr hill, Kirkham.
	20th Sept., 1854.	Blackmore, William, Carshalton, Surrey, and Founder's court, Lothbury, London.
	12th Dec., 1872.	Blackley, Henry, Latchford grange, Warrington.
	23rd Nov., 1848.	*Blundell, Thomas Weld, Ince Blundell hall, Great Crosby.
	1st May, 1856.	Booth, John Billington, Overleigh house, Preston.
	15th Dec., 1853.	Bossi, Arthur, (Melly, Forget and Co.), Rumford street.
	3rd Jan., 1856.	*Bouch, Thomas, 1, Oldhall street, and New Brighton.
P.	23rd Nov., 1848.	*Boult, Joseph, F.R.I.B.A., Exchange buildings, and Parkfield road, Aigburth.
	15th April, 1858.	*Bower, Anthony, Vauxhall foundry, & Seaforth.
P.	6th Dec., 1855.	Bowes, John, Ph.D., F.R.G.S., Warrington.
P.	3rd Dec., 1868.	Boyle, Henry, M.A., The Firs, Bebington.
P.	12th Dec., 1867.	Boyle, Frederick, F.R.G.S., The Firs, Bebington.
	23rd Mar., 1871.	*Brakell, T. F., 7, Cook street, and 23, Richmond terrace.
	13th Nov., 1851.	Brackstone, R. H., Lyncombe hill, Bath.
Mayor L'pool, 1848-9.		*Bramley-Moore, John, Hon. Mem. Archæol. Association, Aigburth.
	30th Dec., 1854.	Brent, Francis, Custom house, Plymouth.
P.	7th May, 1863.	Bright, E. B., 12, Hyde park gardens, London.
P	9th Mar., 1854.	*Bright, Henry Arthur, A.M., Fairfield, and 1, North John street.
	4th Feb., 1864.	Bright, Sir Charles Tilston, C.E., F.R.S., 12, Hyde park gardens, London.
	3rd May, 1849.	Brooke, Henry, Ashbrook hall, Church Minshull, Middlewich.
	6th Mar., 1851.	*Brooke, Sir Richard, Bart.*, Norton priory, Runcorn.
	6th Feb., 1868.	*Brooks, William Cunliffe*, M.P., Barlow hall, near Manchester.
	4th April, 1872.	Broughton, Frederick, Brecon, South Wales

20th Feb., 1868. Burgess, Rev. W. R., B.A., Holywell vicarage, Northampton.

P. 15th Dec., 1853. *Buxton, David, Ph.Dr., F.R.S.L., Principal of the Liverpool Deaf and Dumb Institution, Oxford street, Hon. Secretary.

C

23rd Nov., 1848. *Caine, Nathaniel, Wellesley House, 38, Belvidere road, Prince's Park, and Broomhill, Broughton-in-Furness.

3rd Dec., 1857. *Chadburn, Charles Henry, 71, Lord street, and Egremont, Birkenhead.

5th Sept., 1872. Chadwick, David, M.P., 64, Cross street, Manchester, and 27, Belsize park, London, N.W.

H. Sh. Chesh., 1855-6. *Chapman, John*, Hill End, Mottram-in-Longdendale.

5th Sept., 1872. *Chester, The Lord Bishop of*, The Palace, Dee Side, Chester.

14th April, 1859. *Clement, Leonard*, Nelson-in-Marsden, near Burnley.

11th Dec., 1873. Cockayne, Andreas E., Congleton.

P. 24th May, 1855. **Comber, Thomas*, Exchange buildings.

4th Mar., 1858. Crawford and Balcarres, Right Hon. the Earl of, Haigh hall, Wigan.

6th Dec., 1849. *Crosfield, Henry, 4, Temple place, and Oaklands, Aigburth.

23rd Nov., 1848. Crosse, Thomas Bright, Shawe hill, Chorley.

4th April, 1872. *Crossley, John, Briar's hey, Rainhill.

P. 23rd Nov., 1848. *Cust, General the Hon. Sir Edward*, K.C.H., D.C.L., Leasowe Castle, Cheshire.

D

11th Dec., 1873. Daniel, T. A., Congleton.

23rd Nov., 1848. **Dawson, Henry*, 14, St. James's road.

P. 2nd May, 1850. *Dawson, Thomas, M.R.C.S. Eng., 26, Rodney street.

23rd April, 1857. *Devonshire, His Grace the Duke of*, K.G., D.C.L., F.R.S., Chatsworth, Derbyshire, and Devonshire house, London.

P. 11th Dec., 1873. Dixon, James, Ormskirk.

9th Mar., 1871. *Dod, Joseph, Bebington.

8th Jan., 1874. Doxey, Rev. Jon. Smith, Wood Top, Burnley.

E

P. 11th Dec., 1873. Earwaker, J. B., B.A., F.S.A., Oxford.

4th April, 1872. Ebury, The Right Hon. Lord, Park street, Grosvenor square, London, and Moor Park, Rickmansworth, Herts.

9th Dec., 1852. *Eckersley, Thomas*, Wigan.

6th Mar., 1862. *Edwards, Edward, Adelaide buildings, Chapel street, and Holly lodge, Fairfield.

7th Jan., 1851. *Egerton, Hon. Wilbraham*, M.P., Rosthern hall, Knutsford.

6th Mar., 1862. *Egerton of Tatton, Rt. Hon. the Lord*, Lord Lieutenant of Cheshire, Tatton park, Knutsford.

P. 23rd Nov., 1848. *Egerton, Sir Philip de Malpas Grey*, Bart., M.P., F.R.S., F.G.S., Oulton park, Tarporley.

12th Dec., 1867. *Elsby, Miles Pilling, Bebington.

23rd Nov., 1848. *Evans, Edward, 56, Hanover street.

P. 4th Nov., 1858. *Evans, Edward Francis, 44, St. Domingo vale.

11th Jan., 1872. *Evans, Reginald, 56, Hanover street.

5th Sept., 1872. Evans, Joseph, Haydock Grange, St. Helens.

F

3rd Dec., 1857. Fairbairn, Sir William, Bart., D.C.L., F.R.S., Manchester.

ffarington, Miss, Worden hall, Preston.

12th Jan., 1871. **Ferguson, Wm.*, F.E.S., 2, St. Aidan's terrace, Claughton, and 4, South John street.

23rd Nov., 1848. *Finlay, William, Liverpool College, Shaw street.

12th Jan., 1871. *Float, G. H., 37, Richmond terrace.

P. 15th April, 1858. *Forrest, J. A., 58, Lime street, and 5, Charlesville, Claughton, Birkenhead.

12th Jan., 1871. *Fownes, Frederick J., Lord street.

7th May, 1857. *Frackelton, Rev. S. S.*, A.M., Magherahamlet, Ballynahinch, Ireland.

15th Dec., 1853. *Franks, Augustus Woollaston*, A.M., F.S.A., British Museum, London.

7th Jan., 1858. Frost, Meadows, 25, The Albany, Oldhall street, and St. John's house, Chester.

G

14th Dec., 1848. *Gardner, Richard Cardwell, Colonial buildings, 34, Dale street, and Beechfield, Croxteth road.

23rd Nov., 1848. *Gaskell, John Rooth, Exchange court, Exchange street East.

Geddes, D., Free Library, Blackburn.

11th April, 1867. †*Genn, John Hawke, Sandon street.

5th Sept., 1872. Gerard, Sir R. T., Bart., Garswood hall, Newton-le-Willows.

P. 5th Nov., 1863. *Gibson, Thomas, Senr., 51, Oxford street.

6th Mar., 1862. *Gladstone, Right Hon. W. E.*, M.P., 11, Carlton House terrace, London, S.W., and Hawarden Castle, Flintshire.

6th Feb., 1851. Gray, Lieut.-Colonel, Darcy Lever hall, Bolton.

17th April, 1873. Gratrix, Samuel, Alport Town, Deansgate, Manchester.

1st Dec., 1870. Green, Benjamin Lepard, Greenbank, Talbot street, Southport.

4th Dec., 1862. *Green, John Henry*, 8, Weighton road, Anerley, Surrey.

31st Aug., 1854. Grenside, Rev. William Bent, A.M., Melling Vicarage, Lancaster.

H

P. 6th Mar., 1856. Hardwick, Chas., 74, Halston street, Hulme, Manchester.

8th Jan., 1874. *Hardwick, Alfred, 138, Chatham Street.

12th Jan., 1854. *Harrison, Wm.*, F.S.A., F.G.S., F.R.Soc. North. Antiq., &c., Samlesbury hall, Preston; Conservative Club, St. James's, S.W.; and R.T.Y. Club, Albemarle street, London, W.

9th Feb., 1864. *Harrowby, Rt. Hon. the Earl of*, D.C.L., F.R.S., Sandon hall, Staffordshire, and 39, Grosvenor square, London.

23rd April, 1857. *Hartington, Most Hon. the Marquess of*, M.P., Chatsworth, Derbyshire, and Devonshire house, London.

8th Dec., 1864. Heald, Thomas, Greenfield, Billinge, Wigan.

P. 30th Nov., 1871. *Heffer, E. A., 2, Dale street.

24th Oct., 1854. Heginbottom, George, Birkdale park, Southport.

2nd April, 1868. *Hewitt, James, 1, Dover street.

23rd Nov., 1848. *Heywood, James*, F.R.S., F.S.A., F.G.S., 26, Kensington Palace gardens, London, W.

23rd Sept., 1854. *Hindmarsh, Fred.*, F.G.S., F.R.G.S., 4, New Inn, Strand, London, W.C.

5th Sept., 1872. *Himmers, W.*, Cleveland house, Birkdale, Southport.

12th Jan., 1871. Hirst, John, jun., Dobcross, Saddleworth, near Manchester.

12th Jan., 1860. *Holden, Adam, 48, Church street.

18th Dec., 1856. *Holden, Thomas*, Springfield, Bolton.

23rd Feb., 1871. *Holder, F. W., Hemingford terrace, Conway street, Birkenhead.

11th Jan., 1872. *Holme, James, 10, Huskisson street.

24th Sept., 1854. *Holt, William D., 23, Edge lane.

5th Sept., 1872. *Hornby, T. D., 3, Brunswick street, and Druid's cross, Wavertree.

23rd Nov., 1848. Horsfall, Thomas Berry, Bellamour hall, Rugeley, Staffordshire.

6th Dec., 1860. *Houghton, James, Barnston towers, Neston, and 4, York buildings, Dale Street.

14th April, 1853. **Houghton, Richard H.*, Sandheys, Waterloo.

4th Dec., 1856. *Howell, Edward, 26, Church street.

Mayor Lan., 1849-50. Howitt, Thomas, Lancaster.

P. 8th Nov., 1849. Howson, Very Rev. John Saul, D.D., The Deanery, Chester, Vice-President.

P. 10th Dec., 1857. *Hughes, John R., 17, Tower chambers, Hon. Librarian.

6th April, 1854. Hughes, Thomas, F.S.A., The Groves, Chester.

25th Feb., 1873. *Hughes, W. G., Liverpool and London Chambers, and 16, Richmond terrace.

Mayor Ch., 1851-52. Humberston, Philip Stapleton, Glan-y-Wern, Denbigh.

P. 23rd Nov., 1848. †*Hume, Rev. Canon, D.C.L., LL.D., F.S.A., F.R.Soc. North. Antiq. Copenhagen, Corr. Mem. S.A. Scot., Hon. Mem. of the Society of Antiquaries, Newcastle-upon-Tyne, All Souls' Vicarage, Rupert lane, President.

30th Nov., 1871. *Hutton, David, 61, Canning street.

10th Feb., 1870. Hyde, John, St. Thomas's road, Fulwood park, Preston.

J

1st April, 1852. *Jacob, John Gibborn, 56, Church street, Treasurer.

5th Sept., 1872. *Jackson, Sir W.*, Bart., 61, Portland place, London, and the Manor House, Birkenhead.

5th Dec., 1861. Jackson, William, Fleatham house, St. Bees.

23rd Nov., 1848. Jacson, Charles R., Barton hall, Preston.

P. 2nd May, 1861. *Jeffery, F. J., 97a, Great George street.

9th Jan., 1868. *Jones, Rev. Charles, B.A., Rock Ferry.

23rd Sept., 1854. Jones, Edward, The Larches, Handsworth.

3rd May, 1849. *Jones, Morris Charles, F.S.A., F.S.A. Scot., 20, Abercromby square, and Gungrog, Welshpool.

2nd Dec., 1858. *Jones, Robert, 7, Batchelor street.

6th Dec., 1849. *Jones, Roger L., Sunnyside, 1, Belvidere road, Prince's park.

15th Sept., 1854. Jones, Thomas, B.A., F.S.A., Chetham Library, Manchester.

K

P. 3rd May, 1849. Kendrick, James, M.D., Warrington.

5th Nov., 1863. *King, John Thomson, Clayton square.

4th Dec., 1862. *King, Lieut.-Col. Vincent Ashfield, 18, Tower chambers, and Point of Ayr, Oxton.

L

6th March, 1862. *Laird, John, M.P., Hamilton square, Birkenhead.

23rd Nov., 1848. Langton, William, Manchester and Salford Bank, Manchester.

5th Sept., 1872. **Ledward, Septimus*, The Albany, Oldhall street, and Hill bark, Frankby.

23rd Nov., 1848. Legh, G. Cornwall, High Legh, Knutsford.

1st Dec., 1859. *Legh, Capt. W. J.*, M.P., Lyme park, Disley, Stockport.

10th Dec., 1857. *Leigh, Col. Egerton*, M.P., Jodrell hall, Holmes Chapel.

1st Nov., 1866. *Lilley, John H., H.M. Customs, Revenue buildings.

M

6th March, 1862. McCorquodale, Lieut.-Colonel G., The Willows, Newton-le-Willows.

27th Sept., 1854. Macfie, Robert Andrew, Dreghorn, Colinton, Edinburgh.

15th April, 1858. *McInnes, J., 23, Lightbody street.

23rd Nov., 1848. *M'Quie, Peter Robinson, Thornton lodge, Merton road, Bootle.

5th May, 1853. **Maorae, John Wrigley*, 22, Hackin's hey, and Seaforth house, Seaforth.

1st Dec., 1859. Marsh, John, Rann lea, Rainhill.

P. 5th June, 1851. Marsh, John Fitchett, Hardwick House, Chepstow.

1st Dec., 1864. Marson, James, Hill Cliff, Warrington.

5th Sept., 1872. *Mason, Hugh*, Ashton-under-Lyne.

P. 23rd Nov., 1848. *Mayer, Joseph, F.S.A., M.R. Asiat. S., F.E.S., F.R.Soc. North. Ant. Copenhagen, Associé étranger de la Société Impériale des Antiquaires de France, Hon. Mem. SS. Antiq., Normandie, l'Ouest, la Morinie, d'Emulation d'Abbeville, &c., Bebington, Vice-President.

7th Dec., 1865. Miller, Henry, 173, Canning street.

2nd Jan., 1862. *Milligan, James, jun., Eldwood End, Grassendale, Aigburth.

P. 21st Dec., 1854. *Milner, William, Bentley road, and Phœnix Safe Works, Windsor.

3rd Dec., 1857. Moore, Rev. Richard R., A.M., Cropper's hill, St. Helens.

P. 8th Nov., 1849. Moore, Rev. Thomas, A.M., Midleton college, County of Cork.

P. 23rd Nov., 1848. *Moss, Rev. John James*, LL.D., East Lydford Rectory, Somerset.

4th April, 1872. *Moss, Sir Thomas Edwards, Bart., Otterspool.

3rd Dec., 1863. Moubert, Adolphus, Garswood-Ashton, Newton-le-Willows.

11th Dec., 1856. Myres, John James, 26, Glover's court, Preston.

N

H. S. Ches., 1857. *Naylor, Richard*, Hooton hall, Chester.

23rd Nov., 1848. Nicholson, James, F.S.A., Thelwall hall, Warrington.

12th Dec., 1872. *Norbury, Alfred, 56, Hope street.

5th Sept., 1872. Norreys, R. H., J.P., D.L., Davy-Hulme hall, Manchester.

29th Sept., 1854. *Nottingham, John, M.D., F.R.A.S., F.R.Soc. Northern Antiquaries, Copenhagen, 20, Roscommon street.

O

3rd Jan., 1850. *Overend, James, 55, Hope street.

P

23rd Nov., 1858. *Paris, Thomas Jeremiah, 68, Lord street.

18th Dec., 1856. Parker, Robert Townley, Cuerdon hall, Preston.

P. 12th Jan., 1871. Paterson, James, Warrington.

6th Dec., 1849. Pearce, George Massie, Hackin's hey, and Ormskirk.

11th Dec., 1873. Pearson, James, Congleton.

9th Feb., 1871. Pearson, John E., Golborne park, near Newton, le-Willows.

11th Dec., 1856. *Pedder, Henry Newsham*, 9, Queen's gate, Prince Albert road, South Kensington, London, S.

21st Mar., 1860. *Petty, Thomas Shaw*, Preston.

P. 6th Jan., 1849. *Picton, James Allanson, F.S.A., Queen bldgs. Dale street, and Sandyknowe, Wavertree.

3rd May, 1849. Pierpoint, Benjamin, St. Austin's, Warrington.

23rd Nov., 1848. Pilkington, James, Park pl. house, Blackburn.

10th Feb., 1853. *Platt, Robert*, Stalybridge.

12th Mar., 1857. *Preston, Geo. Theo. Robert, 13, Vernon street, Dale st., and Belmont house, Belmont rd.

R

13th Sept., 1854. *Raynes, James Trevelyan, 37, Oldhall street, and Rock park, Rock Ferry.

P. 29th Dec., 1854. Rees, William, 4, Cavendish place, All Saints, Manchester.

3rd Dec., 1863. Rhodocanakis, H.I.H., the Prince, G.C.G., G.K.S., C.K.G., Ph.D., &c., Clarendon hotel, New Bond street, London.

25th Feb., 1873. *Richards, W. H., Mellor's buildings, Exchange street East.

P. 30th Nov., 1871. Rimmer, Alfred, Boughton, Chester.

23rd Feb., 1871. Robinson, George S., The Greenaw, New Brighton.

20th Dec., 1855. Robin, Rev. P. R., A.M., Woodchurch, Birkenhead.

23rd Nov., 1848. Robinson, Charles Backhouse, Frankton Grange, Shrewsbury.

15th April, 1858. Rowlinson, W., Windermere.

25th Sept., 1854. Rylands, Peter, Bewsey house, Warrington.

P. 13th Dec., 1854. Rylands, Thomas Glazebrook, F.L.S., F.G.S., Highfields, Thelwall, near Warrington.

3rd Nov., 1870. Rylands, John Paul, F.S.A., Highfields, Thelwell, near Warrington.

S

21st Mar., 1872. *Salisbury, Most Noble the Marquess of*, Hatfield, Herts.

6th Dec., 1855. *Sandbach, W. R., Bank buildings, Cook street, and The Cottage, Aigburth.

5th Sept., 1872. *Sefton, Right Hon. the Earl of, Lord Lieutenant of Lancashire, Sefton house, Belgrave square, London, and Croxteth hall.

2nd June, 1853. *Sharp, William*, Fairsnape Sheen Mount, Mortlake, Surrey.

23rd Nov., 1848. *Simpson, Rev. Samuel*, A.M., The Greaves, near Lancaster.

4th April, 1872. Skelmersdale, The Right Hon. Lord, Lathom house, Ormskirk.

P. 16th April, 1863. †*Smith, Henry Ecroyd, Aldboro' House, Egremont, Hon. Curator.

P. 20th Feb., 1868. *Smith, Samuel, Jun., 8, Croxteth road, Prince's park.

3rd Jan., 1856. *Staniforth, Rev. Thomas*, M.A., Storrs, Windermere.

5th Feb., 1863. Steele, Alexander, LL.D., Strathallan hall, Douglas, Isle of Man.

13th Dec., 1855. *Steiner, F.*, Hyndburn, Accrington.

4th Mar., 1852. *Sykes, James, 115, Dale street, 78, Rodney street, and Breck house, Poulton-le-Fylde.

T

5th Sept., 1872. *Taylor, James*, Whitby hall, Wigan.

18th Nov., 1869. *Thomas, George, 1, Rhoda Villas, Rock lane, Rock Ferry.

13th Sept., 1854. *Thornely, Samuel, 27, South hill road, Toxteth park.

17th Jan., 1867. *Thorp, Henry*, Whalley Range, Manchester.

P. 8th Dec., 1851. *Tinne, John A., F.R.G.S., Briarley, Aigburth.

8th Jan., 1852. *Torr, John, M.P., Exchange buildings, and Carlett Park, Eastham.

H.S. Lanc., 1857. Towneley, Charles, Towneley, Burnley.

P. 2nd April, 1857. *Towson, John Thomas, F.R.A.S., 47, Upper Parliament street, and Sailors' Home.

14th April, 1863. *Turner, Charles, M.P., 4, Lancelot's hey, and Dingle head.

6th Dec., 1849. Turner, Edward, High street, Newcastle, Staffordshire.

V

23rd Nov., 1848. *Varty, Thomas*, Stag-stones, Penrith.

16th Dec., 1869. Vaudrey, Benjamin Llewellyn, Tushingham hall, Whitchurch.

4th April, 1872. Vaudrey, Rev. D., Darley Rectory, Matlock.

12th Dec., 1872. Veevers, R. Woningworth, Fulwood park, Preston.

14th April, 1853. *Vose, James, M.D., 5, Gambier terrace, Hope street.

W

P. 11th Dec., 1873. Waddington, W. A., Piccadilly road, Burnley.

Myr.C. 1838-39, 48-49. *Walker, Sir Edward Samuel*, Berry hill, Mansfield, Notts.

11th Dec., 1856. *Walmsley, Thomas*, Preston.

12th Dec., 1867. *Walmsley, Gilbert G., 50, Lord street.

6th Mar., 1851. Warburton, Rowland Eyles Egerton, Arley hall, Cheshire.

21st May, 1857. Ward, John Angus, Hooton lodge, Chester.

3rd May, 1864. *Waterhouse, John Dockray, Mossley bank, Elmswood road, Aigburth.

P. 5th Dec., 1861. *Waterhouse, Nicholas, Durning road.

12th Dec., 1872. *Watson, R. A., Great Crosshall street, and Rotherwood, Ivanhoe road, Prince's park.

17th Dec., 1857. Watts, Sir James, Manchester, and Abney Hall, Cheadle.

1st Feb., 1849. *Webster, George, 6, York buildings, Dale street, and Mossley hill, Aigburth.

P. 3rd Jan., 1856. *Welton, Thomas A.*, F.S.S., 6, Offerton road, London, S.W.

13th Mar., 1862. Westminster, His Grace the Duke of, 33, Upper Grosvenor street, London, and Eaton hall, Chester.

9th Mar., 1871. *Whalley, Edward, Liverpool and London and Globe Insurance Company.

6th Feb., 1873. *Whiteman, James Walter, 55, Church street.

2nd June, 1853. *Whitley, George, 5, Clayton square, and Bromborough.

9th Oct., 1854. Whitley, Rev. John, A.M., Newton rectory, Newton-le-Willows.

6th June, 1850. Whitley, Rev. William, B.A., Catsclough, Winsford, Cheshire.

P. 30th Nov., 1854. Wilkinson, Thomas Turner, F.R.A.S., Corr. Mem. Lit. and Phil. Soc. Manch., Burnley.

14th Feb., 1861. Wilson, J. M., Hardshaw street, St. Helens.

12th Jan., 1871. *Wilson, Edward J., Custom house, Liverpool.

13th Nov., 1866. *Winder, Thomas, Coniston house, Breeze hill, Walton, and 3, Pownall street.

7th Mar., 1850. *Wimmarleigh, Rt. Hon. Lord*, Bank Hall, Warrington.

23rd Nov., 1848. Wood, Isaac Moreton, Newton, near Middlewich.

7th Dec., 1865. *Wood, R. H.*, F.S.A., F.R.G.S., Corr. Mem. Soc. Antiq. de Normandie, Crumpsall, Manchester.

7th May, 1855. * *Woodhouse, John George*, Bronte house, Everton valley.

HONORARY MEMBERS.

27th Sept., 1854. Babington, Charles Cardale, A.M., F.R.S., F.S.A., F.L.S., Professor of Botany, 5, Brook side, Cambridge.

1st Nov., 1860. Brown, James, Messrs. Brown Brothers and Co., and 38, East Thirty-seventh street, New York, U.S.A.

P. 1st Feb., 1855. Clarke, Joseph, F.S.A., The Roos, Saffron Walden, Essex.

19th May, 1859. Cochet, M. L'Abbé, Inspector of Antiquities and Monuments in Normandy, Dieppe.

27th Sept., 1854. Gray, John Edward, Ph.D., F.R.S., F.L.S., &c., British Museum, London.

13th Sept., 1870. Hooker, Joseph Dalton, C.B., M.D., D.C.L., LL.D., Pres. Roy. Soc., F.L.S., F.G.S., F.R.G.S., Royal Gardens, Kew.

13th Sept., 1870. Huxley, Thomas Henry, Ph.D., LL.D., F.R.S., F.L.S., F.G.S., Professor of Nat. Hist. in the Roy. School of Mines, 26, Abbey place, St. John's wood, London.

P. 27th Sept., 1854. Latham, R. Gordon, M.D., 96, Disraeli road, Putney, London.

13th Sept., 1870. Lubbock, Sir John, Bart., M.P., F.R.S., F.L.S., F.G.S., High Elms, Farnborough, Kent.

9th Dec., 1852. MacAdam, Robert, 18, College square East, Belfast.

27th Sept., 1854. Owen, Richard, C.B., M.D., LL.D., F.R.S., F.L.S., F.G.S., British Museum, London.

P. 7th May, 1851. Pidgeon, Henry Clarke, 47, Sutherland gardens, Harrow road, London, W.

	27th Sept., 1854.	Sabine, General Sir Edward, R.A., D.C.L., LL.D., F.R.S., F.R.A.S., 13, Ashley place, London, S.W., and Woolwich.
P.	6th Feb., 1851.	Smith, Charles Roach, F.S.A., Fellow of the Roy. Soc. North. Antiq. Copenhagen, Hon. Mem. SS. Antiq., France, Normandy, Scotland, Spain, Newcastle, the Morinie, Abbeville, Picardy, Wiesbaden, Luxemburg, Treves, Touraine, &c., Temple place, Strood, Kent.
	13th Sept., 1870.	Stokes, George Gabriel, M.A., D.C.L., LL.D., Sec. R.S., Lucasian Professor of Math. in the Univ. of Cambridge, Lensfield Cottage, Cambridge.
	13th Sept., 1870.	Tyndall, John, LL.D., Ph.D., F.R.S., F.G.S., Professor of Nat. Philos. in the Royal Institution, Royal Institution, Albemarle street, London.
P.	20th Jan., 1870.	Walcott, Rev. Mackenzie E. C., B.D., F.S.A., &c., Præcentor and Prebendary of Chichester, 58, Belgrave road, London, S.W.
P.	27th Sept., 1854.	Wright, Thomas, A.M., F.S.A., Hon. M.R.S.L., Member of the Institute of France; Fel. Roy. Soc. North. Antiqs. Copenhagen; Hon. Mem. of the Soc. of Antiquaries of France; Corresp. Mem. Soc. Antiq. Normandy; of Soc. Antiqs. Scotland, &c., 14, Sydney street, Brompton, London.

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TRANSACTIONS.

EXTRACTS FROM THE REGISTERS AT ORMSKIRK CHURCH.

By James Dixon, Esq., F.R.Hist.S.

(Read 11th December, 1873, and 2nd April, 1874.)

Introduction.

Some years ago, my attention was drawn to the large amount of valuable matter which lies enclosed in our Parish Registers. All over the country we have the materials for history scattered; of undoubted authenticity, and also available for literary purposes. The facts which were important in the various localities, the great events in the lives of the people, rich and poor, and many circumstances illustrative of manners and customs, are here formally recorded and often authenticated. Nor is this all. When every parish was weak, each endeavoured to strengthen another, expecting aid in its turn; and thus there is a reference to localities most of which were wholly unknown, in the limited geographical knowledge of the rustic population.

A remark in a public newspaper, during 1873, arrested my attention; this drew on a correspondence; and I was led to believe that even the naked extracts from the registers of some of our older churches, might be acceptable to the members of a local society which seeks to accumulate ore and metal, to be fused and moulded by future workmen. The

extracts which I had carefully made, promised therefore to be of some service; and they are given here. It is only necessary to say that the orthography, punctuation, abbreviations, &c., have all been carefully preserved as in the original.

Having a distinct object in view, that has been steadily adhered to. With the exception of a passing allusion to some fact of interest, and suggestive of the use which might be made of other facts,—this is merely a series of extracts, with a connecting thread of explanation. There are individual entries each of which would afford the text for a dissertation; and in other hands might have led to the loading of this skeleton with a mass of flesh in the form of notes. Nor is there anything to prevent those who have information, ability and leisure from adopting such a course with these or with other and similar materials.

The subject naturally divides itself into three Parts.

I.—Interments in the Derby Chapel.

This portion includes an account of all the recorded interments which have taken place from that of Henry, 4th Earl of Derby, nearly three centuries ago.

If there were nothing else at Ormskirk Church possessing any special attraction, the Derby vault there would be deeply interesting to lovers of the British constitution. Here repose, among those of many other members of the noble house of Stanley, the mortal remains of James, the "Great Earl of "Derby," the loyal supporter and friend of Royalty; and those of his illustrious Countess, the heroic defender of Lathom House. I feel, therefore, that the few extracts from the Parish Registers of Ormskirk, embodied in this paper (though presented with diffidence) will probably be acceptable to the members of this Historic Society.

Before giving these, however, I would say a word about the Chapel, beneath which lies the "time-honoured vault" of the

Stanleys. Its site is at the S.E. corner of the Church; and it appears to have been such a complete enlargement of a former Chapel there as to cause it to be called, at the interment of Henry, fourth Earl of Derby, "the new chancell." At the altar of our Lady in the former, Thomas, first Earl of Derby, founded and endowed a chantry—(See Canon Raines' *Lancashire Chantries,* vol. i, p. 103).

It is doubtless a matter of regret to many, as it has often been to me, that a spot so full of interest should yet remain without visible memorials of so many of the noble who sleep beneath its unadorned walls and windows. But if ever the long talked-of restoration of the Church should take place, this very interesting portion of it will surely come in for its share.

The registers at Ormskirk date from the first year of the reign of Elizabeth, and are thus prefaced:—

The Regester Booke of all such as have been christened, married, and buried within the parish of Orms^{k} since the beginninge of her Ma^{tis} moste happie raigne (which did begin to England's joy and comforte) the seventeenth day of November Anno Domini 1557.

Other evidences of the existence of a strong Protestant feeling in Ormskirk, about this period and the commencement of the Orange reign, will appear in further extracts; but I must first dispose of my primary undertaking, and produce the following Derby Chapel records. And I shall confine the list strictly to those which are records of interments in the Chapel, as special interest only lies with them, while with respect to the several members of the house of Stanley not herein mentioned, the inference may be fairly drawn as to where they would severally find their last earthly repose.

---

4 December 1593.

The funerall of the Right honorable henrie late Earle of derbie in the new chancell.

September 4. 1604
Ser Edward Stanley bur[d] in my Lord's chapel.

November 21. 1605.
A child of Mr. Tho[s] Stanley buried in my Lorde his chancell.

October 17, 1608.
Lady Elizabeth Stanley fi : William Earle of Derbie was buried in my Lord his chappell.

7 June 1617.
Will[m] Langeley Gent. bur : in the Erle of Derbie's chappell.

10 September 1617.
Henry Mountieson bur. in my Lord of Derbies chancell.

16 October 1617.
John Portman Inf : fil : Ser Henry, Knight, bur : in the Right Ho[ble] the Erle of Derby his chancell.

February 19, 1625.
Edw : Potter Gent : bur[d] in my Lord's chancell.

April 19, 1628.
Miss Elizabeth Davies bur[d] in my Lord's chancell.

February 24, 1629.
Hugh Dicconson — buried in my Lord's chancell.

March 2, 1629.
William Alcar, bur[d] in my Lord's chancell.

March 31, 1630.
Stanley Woorden bur[d] in my Lord's chancell.

22 June, 1633.
Charles Fyles Inf : fi : Henry Esq. bur. in Lord's chappell.

October 2, 1634.
Hugh Hesketh Gent : bur[d] in my Lord's chancell.

14 Aprill, 1635.
Mr. Henry Stanley Inf : fi : p Nobilis D[ni] Strange bur : in his hon : chancell.

April 21, 1637.
David Woods bur[d] in my Lord's chancell.

March 29, 1638.
Mr. James Stanley, son of the Right Honorable James Lord Strange buried in my Lord's own chapel.

27 October, 1641.
Will Fyles fi : Henrie Esquire bur. in my Lord's chansell.

August 29, 1642.
Isabell the Ladie Stanley was bur[d] in their own chappell.

September 5, 1643.
Anne daughter to the Lord Cottington contracted to Charles Lord Strange bur[d] in my Lord's chancell.

The extract found elsewhere about "noe registers" being "Ingrossed" between 1644 and 1653, owing to the "warres," explains an omission (to be regretted) viz.: the record of the sad event of the "Martyr Earl's" interment.

July 4, 1658.
Mr. John Lappage of Orms[ke] Chaplayne at Lathom bur[d] in my Lord of Darby's chancell.

February 29, 1658.
Helena Jones fil: Mr. John Jones of Lathom bur[d] in my Lord of Darby's chancell.

February 10, 1658.
Edward Stanley sonne to the Right Ho[ble] Charles Earle of Derby Intombed in his own chancell. Dyed 6th.

February 24, 1658.
Katherine Wetherby of Ormiskirke Widow bur[d] at the east end of my Lord of Derbyes chancell.

April 16, 1661.
Captaine Gerrard Markland of Ormskirke buried in the Earle of Darbye's chancell.

June 30, 1662.
Earle William brought from Chester and buried in his owne Tomb at Ormsk.

I am not able to account for this seeming inaccuracy, as Earl William died at Chester in 1642. Perhaps the fact was owing to the disturbed state of the country; so that after temporary burial at Chester, he was removed when peace had been sufficiently restored, to his proper place of sepulture.

June 1, 1663.
Lady Catherine Standley fill: Charls Earle of Derby in's owne chancell.

August 16, 1663.
Charles Stanley fil. Carolus Comes Derbje and Domine Mane Insular. sepult in his chancell.

March 7, 1664.
Edward Stanley Esq. Brother to the Right Ho[ble] Charles Earle of Derby. Dyed at Portsmouth. Intombed in their own chancell.

March 30, 1664.
Mr. Thomas Moore of the Isle of Man bur[d] in my Lord's chancell.

Under a rudely depicted coronet.

April 6, 1664.
Sharlett Countess Dowager of Derby Departed this Life at Knowsley the 22[d] day of March. Entombed in her own chancell. Post Funera Virtus.

June 26, 1665.
An Infant of Charles Earle of Derby Intombed in his own chancell.

December 23, 1670.
Guil. Stanley fil. Jacobi Comitis de Derby in famulo Sepulto.

January 29, 1672.
Carolus Comes de Derbie Dignissimus et honoratissimus, Vitam fatis apud Knowsleye Vicesimo primo die Decembris pie ac Sanctissime reddidit; propriaque suæ Capella in Ecclesia Ormeskirkiensi Vicesimo nono Januarij fuit tumulatus Regi, patriæ, et Ecclesiæ, Anglicanæ, Deploratus.

July 29, 1674.
Dn̄a Maria Stanly fil: honoratissimi Dn̄ Caroli Comitis de Derbie defunct obijt Londini 18 die. tumulata fuit in ffraterna cancella.

I have spoken of the unadorned walls and windows of this chapel, but there is a single monument which deserves notice. Though the place of interment is not mentioned in the Registers, yet the mural tablet to which I refer makes known the fact that Alice, wife of the Hon. and Rev. John Stanley, Rector in succession of Liverpool, Bury, and Winwick, was buried, if not within the vault (and I do not think she was) yet within the chapel, *on the eastern side of the vault;* for thus testifies the slab on the east wall:—

> Beneath this monumental marble lies,
> One who at once, was gracefull good and wise,
> Lov'd and admir'd in every scene of Life,
> The Daughter spotless, exemplary wife.
> Firm in her Friendship & in Honour clear,
> Discreet, sweet-temper'd, modest and sincere,
> Agreeable in all things, most in mind,
> She liv'd a bright example to her kind.

Alice wife of the Hon[ble] and Rev[d] John Stanley, D.D., and Daughter of Edward Warren, of Poynton in Cheshire, Esq[r]., by his second wife, Margaret the Daughter of the Hon[ble] William Spencer, Esq[r]., Died the 5th of Nov[r]. 1737 Aged 39.

In another part of this paper, I find occasion for a remark upon Lancashire Witchcraft, of the ancient kind. Unhappily, neither our Lancashire nor Cheshire "Witches,"—of the present day and in the modern sense,—are all of them everything that is to be understood by the terms—

Discreet, sweet-temper'd, modest and sincere.

Dr. Stanley survived this excellent wife till 1781, dying at the advanced age of 91 years.

II.—Miscellaneous Extracts.

Churchwardens are not a class of men who incline to hiding their lights under a bushel; consequently if we do not find a long list of other things recorded, we are pretty sure to find at least their names. Thus, at the very commencement of the registers, we read on a fly leaf—

5th Januarie 1600.

The names of the Churchwardens wch cawesed this booke to be writen. And payde for the wrytinge thereof xxs.

Roger Walworthe
Thomas A Ascough
Raffe ☐ Byrtchwood
John J. Ormieshaw
William W Hoolme
John —O— Lancaster

wryten in the presence of Ric Ambrose Vicar

The above signatures shew that at least one of the three ordinary subjects of education was not commonly taught in the parish. And we gather from the record itself, that the entries must have been first made on loose sheets and afterwards bound together.

At the end of the register of Baptisms for 1644, we find this interesting memorandum :—

Here endeth the Regester 1644. And by reason of the continuall warres heare in England there hath beene noe

Regester Ingrossed till the year 1653 as may appeare in the New Booke. Authorized by Act of Parliament
Vivat Rex

And the " New Booke," accordingly, begins in this manner :

Publications and Marriages According to Act of Parliament 1653. Commanding to be Registered from and after the 29 of September 1653 which was performed and done in the parish of Ormskirk as followeth.

The following appears to be the form of Certificate of the Proclamation of Banns.

Let all men whom these presents may concerne knowe that the Banns of Matrimonie hath been Published in the parish Church of Ormskirk in the audience of the Congregation there assembled three several Lord's days last past between A. B. & C. D. both of this parish as witness my hand this 2 daye of Feb : in the yeare of Our Lord 1653.

By me
Peter Barton
Regestr

All friends are herewith contente for anie thing I know to the contrarie

As to these Act of Parliament Marriages themselves, they were not the off-hand sort of business which marriages often are now-a-days, for we find mention of several which were attended by one or more Justices of the Peace, whose signatures attest their presence.

Fidelity to the House of Stanley and its connexions is not left unnoticed by these old-fashioned Churchmen ; thus we read—

March 18 1654.

William Lord Strange Son of Charles Earle of Derby born at Lathom upon Sunday March 18th and Baptized March 22 1654, whom God preserve with Long life and heaven at last & soe prayeth Richard Grice.

Again—

Alexander Breres of Lathom Gent., Steward to the Right

Honorable Charles Earle of Derby Departed this life at Ormskirk July 3 day, Buried the 5th

In Ecclesia in Mr. Mossock's Chancel.

Faythfull to his Prince, to the Commonwealth a Friend,
His soul to God, to earth his body I doe commend.
Wayting the Sentence of the Blessed Day
By's Fayth in Christ that hee will live for aye,
My verse to vile, to record and set forth
Such to too few, this Age of ours brings forth.

Post Funera Virtus. Will. Grice Regr 1659.

The "Mr. Mossock's chancel" here named lies on the north side of the Church, and on its wall is a brass plate, containing the following declaration :—

Jesus Mariæ
God Save the King

My Ancestors have been interred heare 385 yeares
This by Auntient evidence to mee appeares
Which thatt all maye knowe & none doe offer wrong
It is tenne ffote broad & 4 yeardes & a halffe long

Anno Domini 1661 Henry Mosoke
Ætatis Suæ 74 Ad Majorem dei Gloriam.
Richard Mosok Sculpsitt.

Mossock Hall, the residence of the Mossock family, is situated at Cunscough, in the township of Melling, a spot which may once have been considered a sort of "debateable ground," at the junction of the three townships of Aughton, Bickerstaffe, and Melling. The name of the family has become extinct, and the property has passed by marriage into the hands of the Blundells of Ince Blundell. A Lieutenant Mossoke is mentioned in the Annals of the Civil Wars in Lancashire, as one of the Royalist prisoners who were taken at the battle of Aughton Common, 20th August, 1644.

If the plate tells the truth, we have here one of the earliest positive claims to a burial place to be found anywhere in the neighbourhood, and its title to interest is therefore very considerable.

Loyalty seems to have been ever one of the cardinal virtues

of the people of Ormskirk, as seen in the following memorial for example :—

Charles by the Grace of God the Second, Sonne of Charles the first : King of England Scotland France and Ireland. Defender of the Fayth &c. 1660. Proclaymed twice at the Market Cross at Ormskirke By the Right worⁿ John Entwistle Esq : one of His Maᵗˢ Justices of Oyer and Terminer ; Peace & Quorum & Will. Grice Regʳ With Great Alacrity and to the Joy of all his Maᵗˢ loving subjects Crowned King at Westminster the 23ʳᵈ day of Aprill being St. Georg day 1661.

May 11 1660.

The same day at Seven of the Clock in the Afternoon being the Eleventh day of May 1660 I proclaymed In Ormskirke at the Crosse Charles the Second by the Grace of God : King of England, Scotland, France and Ireland, &c. To the Joy of all Good Christians.

Vivat Rex—Will Grice Registrar.

Testimony to the liberality of the people of this old town is seen in the following list of Collections by Royal Warrant, made between 1664 and 1671.

By Virtue of the Great Seale of England Anno R. Rˢ Caroli Seᵈⁱ, &c.

December 31, 1664.

Collected in the Parish Church of Ormskirk, six shillings and six pence for St. Mary's Church in Chester upon his Maᵗⁱˢ Letters Patent &c.

February 14, 1665.

Collected in the Parish Church for a great fire in Aughton one shilling and eight pence &c.

Novʳ 14, 1665.

Collected in the said Parish Church at three severall Collections for the use of the poor Infected and Visited in the City of London four pounds and nine pence and payd over to George Rotheram appoynted Receiver by the Lord Bishop of Chester.

December 10, 1665.

Collected in the said Parish Church Nine Shillings and Nine Pence for the poor Visited in the City of London.

May 29, 1666.

Collected in the said Parish Church of Ormskirke In Money upon the fast day being for the poor Visited and Infected in London four shillings and two pence.

March 8th, 1667.

Collected in the Parish Church upon his Mats Letters Patent for Capt. James Barret upon losses sustayned at Sea 5 Shillings & 5 pence.*

December 28, 1668.

Collected in the Parish Church of Ormskirke the Summe of Nine Shillings and three pence for the use of Mrs. Diana Purlaina and Mrs. Elizabeth Villiers for their losses by piracy—their husbands slayne in the Isle of St. Marys.

December 13 (27, 31), 1668.

Collected in the Parish Church of Ormskirke by virtue of severall Warrants and by his Mats Royall Proclamation for and towards the Reliefe of the poor who had sustayned Great Losses by that sadd and Lamentable ffyre in London the Summe of three pounds.

The foregoing are a sample of what we find in the Registers, but in the Churchwardens' books we find hundreds of a like character between the years 1676 and 1725, almost every part of England being responded to, besides foreign places. The following are selected :—

July, 1694.

	£	s.	d.
Then Collected in ye Parish of Ormske for the ffrench Protestants the sum of.....	9	6	6

January 10th, 169⅘.

Collected then for the poor Sufferers of St. Olave Southwark One ounce and a half of old Silver Money.

May 5, 1699.

Collected then in ye Parish of Ormeske for ye use of the fforeign Protestants	17	8	11

7ber 12th, 1701.

Collected then in ye Parish of Ormeske, for ye repair of Chester Cathedrall	4	12	10

It is probable that the repair here alluded to was the restoring what had been despoiled in 1683, as it then "sus-"tained considerable damage from an enfuriated rabble, during

* Those who possess a copy of Mr. Harland's "Manchester Collectanea" (*Cheetham Society*), will find a suitable place to make a note of this extract, under the head of "Notices of Notables—*Thomas Barritt of Manchester, and his MSS.*"

"the commotion raised by the Duke of Monmouth when "passing through Chester."

March, 1703.

Collected then in the Parish of Ormeske. for the Poor Protestants in the Principality of Orange.. 10 5 0

October 23, 1715.

Collected on St. Peter's Church in Chester briefe ... 0 7 6¾

December, 1716.

Collected for the Protestants in Gt Poland 5 5 4

October 24, 1724.

Collected on Rippendale Inundation brief 2 9 6½

In the same accounts, which appear to have been kept with great minuteness from 1665 to 1692, we find many interesting items, bearing more or less on the manners and customs of the time. The following are a few from among many such :—

1665. May 26. Cost on the schoole boyes and others at goinge procession in bread and drinke 0 0 10

The Ascensiontide processions, or "beating the bounds," as they were often called, are among the things of the past; but the late Rev. J. T. Horton, during the early days of his Vicariate, once "beat the bounds" of this large parish single-handed, and it took him two days to perform the task.

1665. June 12. Cost on the ringers the first tyme wee had newes of our navies' good successe agt the Dutch and for candles..... 0 1 0

1666. April 16. Pd for Vermin. 39 Orchants (hedgehogs); 3 Kyde (Kite) heads; 52 Maul-derts (Moles) heads; 50 Pianets (Magpies) heads; 18 Gees (Jays) heads 0 14 0

It was an old custom, in most country parishes, to have a professional "molecatcher," and to nail the heads of foxes and other "vermin" on or near the door of the Church. They proved an attraction to the dogs around; and this led to the necessity for an officer called the "dogwhipper." Hence we have an entry of—"paid for a whipp to whippe dogs forthe of the Church."

1667. May 29. Payd to ye ringers for ringing on his Ma^tys^ birth and restoration day 0 5 0
Spent the same day on the Vicker and our seleves... 0 5 0

The "vicker" was often found a convenient guest, to pass off these little expenses with becoming grace and dignity.

1668. Feb. 7. Payd for hire of a horse to Wigan to fetch ropes and pulleyes to take downe the bells 0 1 0
1668. Nov. 5. Payd to the Ringers for Ringinge upon powder treason day according to ancient custome 0 5 0
1679. March. Paid for a role of Parchment about enrollinge Popish Submitters 0 0 6
1680. Septr 30. Paid for an order about recusants 0 0 8

Popery was clearly in no favour here about this time.

1682. Septr. P^d^ for 12 bottles of wine sent downe to Mr. Entwistle's to treat the Lord Bishopp ... 0 12 0

Mr. Entwistle was an ancestor of the present Mr. Entwistle of Foxholes, near Rochdale, and an owner of property in the parish of Ormskirk. Some of the family are entombed in vaults there. "The Lord Bishopp" was Bishop Pearson, the well-known author of an "Exposition of the Creed."

1682. Septr. P^d^ for a nogg to henge Churchwardens hats on 0 0 3

In country houses a rail fastened to the wall, with a number of projecting wooden pins, called "noggs," may frequently be seen. Of the official requirements of Churchwardens, it may not be uninteresting to state that only a very few years ago the wardens' pew at Ormskirk contained four copper spittoons.

1685. May 28. Paid for all the Workmanship about whiteninge the Church and drawinge verses out of the Scriptures on the Walls and all other things..... 6 0 0
1689. Feb. 6. Payd to ye Ringers for Ringing being the day his Ma'tie began his Gracious Raigne... 0 5 0

1690. July 19. Payd to the Ringers and spent at the Boone fyer with the Constable and severall others when the Joyfull News came that King Willi : *hat Gott* ye Victory in Ireland* 0 3 4

1691. Aug. 8. Payd for wine And Alle wch wee presented to his Lordship the Bishopp while he stayd at Ormskirke 1 16 0

Payd to the Ringers at the same time 0 3 4

Payd and spent on our selves in attending the Lord Bishop while his Lordship stayd at Ormeskirke 0 3 8

This was Bishop Stratford, founder of the Chester Blue Coat Hospital, and whose stay in Ormskirk may be accounted for by the fact that his daughter married Edmund Entwistle, D.D., Dean of Chester, second son of John Entwistle, Esq., and who was born at Ormskirk in 1660. What a stir there would be, however, if the Churchwardens attempted now to saddle such expenses on the ratepayers !

1691. Octr 3. Payd to the Ringers for Ringing when ye joyfull news came y^t^ Limbericke was taken and surrendered..... 0 3 4

1692. Ap. 17. Spent on Mr. Worthin when hee read prayers Wednesday before Easter Mr. Taylor being not at whome..... 0 0 3

The Rev. Zachary Taylor, the vicar here named, made himself notable by his zealous declamations against Lancashire witchcraft (I mean of the ancient kind). He was most likely on a preaching tour at this time, being one of the King's Preachers for the County Palatine.

1692. Ap. 17. Payd for a pint of wine and a manchet (small white loaf) which the Clarke fetched for severall sicke persons within Scarisbricke which the Vicker went to severall times 0 1 1

After a long gap in these accounts, we come to an entry in 1801, which is especially interesting at the present day, viz. :—

Ale for Ringers on the news of Emperor Paul's death and taking of the Danish fleet 1 0 0

* The news must have been long on the way, as the Battle of the Boyne, near Drogheda, was fought on the 1st.

With England's present and prospective alliances, we are not likely again to rejoice over similar events for some time to come.

Going back a few years, to an entirely different subject, we find that encouragement to vagrancy was certainly not the rule.

Appoynted to be Registered
January 9 day 1660
Pr John Entwistle
Esqre.

William Brown Aged 29 yeares convicted at Ormskirke before John Entwistle Esq. Justice of Peace and Quor: for a wandering Beggar. Black Hayrd, lame of one Arme, sent back to Hurdle in Hampshire where he sayde he was Borne.

Small facts such as I have here adduced evidence of, may and often do appear insignificant to many; yet they are very useful for illustration, and for the verification of other facts, especially in respect to names, places, and dates.

III.—Parish Briefs.

Some of the quotations just given are suggestive of a state of society now little known. Every age has its own necessities; and it has also greater or less facilities for meeting them. The necessity for what were known as Briefs may be illustrated from the facts of to-day.

At the present time our thoughts are turned with anxiety towards a distant portion of the British empire, the presidency of Bengal; where thousands of our fellow-creatures are starving because there has arisen "a mighty famine in "that land." Such a calamity naturally awakens a feeling of deep sympathy in the hearts of us who are at home at our ease. At such a time it is surely profitable to read these simple parochial records of the bounty of our forefathers, who gave abundantly of their scanty substance whenever cases of distress were proclaimed to them by their minister. He was the only medium, generally, in those far back days, through which such things could come to their knowledge.

These serve to shew, on a limited scale, that there existed a bond of Christian brotherhood in past ages, like that which now manifests itself on behalf of our Indian friends; and they exhibit a charity which had then no local or even national limit. Our benevolence ought in like manner, in these days of universal intercommunication, to know no general one.

Such fragments possess much interest for those who are accustomed to reflect, especially when compared with similar occurrences which the daily press ever keeps us acquainted with.

29° June, 1676.

Paid then by James ffarrar, James Halsall, Tho: Grimshawe, Willm Barton, Wm Goore, & Hen: Prescott Churchwardens for ye parish of Ormsk: into ye hands of Mr. Richard Abram High Constable the Sume of five pounds fourteene shillings six pence, wch s^d sume was collected in this parish for and towards the Reliefe of ye Inhabitants of the Town of Northampton lately ruined by fire.

	I. Say p: J. ff. £	s.	d.
Collected in Ormeskirk of ye s^d moneys	02	09	02
In Lathom	01	03	06
In Scarsbrick	00	12	04
In Burscough	00	08	04
In Bickerstaffe	00	16	11
In Skelm^rsdale	00	04	03
	05	14	06

December ye 11th, 1692.

Collected then in ye Parish Church of Ormeskirke upon Chagford breife ye Sum of Seaven Shillings,

January ye 29th, 169⅔.

Collected then in ye Parish Church of Ormeskirke upon Ledbury briefe in ye County of Hereford ye Sum of Nine Shillings Six Pence.

Aprill ye 23th, 1693.

Collected then in ye Parish Church of Ormeskirk for ye poor sufferers of Druridge, Widdrington and Chibbarne in Northumberland ye sum of ffourteen Shillings & Sixpence.

May 6th, 1694.

Collected then in ye Parish Church of Ormeske for ye poor sufferers of Woollew ye sum of ffourteen Shillings & a Penny.

Collected ye 14th of Aprill, 1695.

In ye Parish Church of Ormeskirke for ye poor sufferers of Gwillingham in ye County of Dorsett ye Sum of Ten Shillings ffour Pence ffarthing.

Aprill 30th, 1695.

Collected then in ye Parish of Ormeske in ye County of Lancr for ye poor sufferers of Warwick by fire ye severall Sumes (viz.)

	£	s.	d.
Ormeskirke	2	8	6
Latham	0	8	6
Scarisbricke	0	10	0
Burscoe	0	9	2
Bicurstaffe	0	4	10
Skelmersdall	0	2	3
	4	3	3

June 16th, 1695.

Collected for ye poor sufferers in York the sum of fifteen shillinges and nine pence.

7ber 15, 1695.

Collected then for ye poor sufferers in Nether-haven & ffiddleton ye sum of Twelve Shillings and four pence.

9ber 15th, 1696.

Collected then for ye poor sufferers of Wrockiden in ye county of Salop ye Sume of Six Shillinges.

Aprill 11th, 1697.

Collected then for ye poor sufferers of Streatham in ye Ile of Ely Six Shillings in old Money.

7ber 12, 1697..

Collected then for ffewston Church in Yorkshire Seaven Shillings. Pd by J. C.

John Crosbie, Warden.

December 26th, 1697.

Collected then for Wolverhampton in Staffordshire Seaven Shillings Ten Pence.

J. Crosby, Warden.

August 14th, 1698.

Collected then for Newberry fire in Berkshire Eight Shillings & Eleaven Pence.

Wm Barton, Warden.

October 9th, 1698.

Collected then in ye Parish of Ormeskirke for Minehead fire in ye County of Somersett Thirteen Shillings & Eight Pence.

Wm Barton, Warden.

March 26th, 1699.

Collected then in ye Parish Church of Ormeske for ye poor Sufferers att Lancaster ye Sum of Twelve Shillings Eight Pence half penny.

Wm Barton, Warden.

Aprill 30th, 99.

Collected then for ye fire att Shrewsberey Seaven Shillings Sixpence.

Wm Barton, Warden.

May 7th, 99.

Collected then for Derby Court in Westminster Eight Shillings Sixpence.

Hen. Valentine, Warden.

June 18th, 1699.

Collected for ye Sufferers of Drury Lane in Middlesex twelve Shillings & a Penny farthing.

Hen. Valentine, Warden.

May 5th, 1700.

Collected for ye use of St Olaves Church in Chester Ten Shillings.

Tho. Orme, Warden.

ffebruary 23th, 170⅘.

Collected then for ye poor Sufferers of ye Towne of Beccles in ye County of Suffolk Seaventeen Shillings.

Tho. Orme, Warden.

May 18th, 1701.

Collected then for ye Cathedrall in ye Isle of Ely ye Sum of ffifteen Shillings.

Tho. Orme
decd

9ber 12th, 1700.*

Collected then in ye Parish of Ormeske for ye poor Slaves in Sally† Eight Pounds Three Shillings Six Pence.

Alsoe at ye same Time for ye fire in Bermondsey Southwark Sixteen Shillings Sixpence

August 30th 1701

Collected then in ye Parish Church of Ormeske ye Sum of Ten Shillings & Six pence for ye poor Sufferers in Eccleshall in ye County of Stafford.

* This date coming after 1701, can only be due to the copying agent who prepared the sheets for "us who cawesed this booke to be writen."

† On the west coast of Morocco; formerly a stronghold of piracy.

November 2d 1710.

Collected then for Leominster Church in the County of Hereford ye Sum of	s.	d.
	14	4

ffebruary 1st 170½.

Collected then for ye repair of Bromley Church in Staffordshire	13	00¾

Aprill 26th 1702.

Collected then for repair of Rye Church in Sussex ...	8	3
And then alsoe for William Calterbanck	6	1½

June 21o 1702.

Collected then for ye parish Church of St. Germains in Selby in ye West Riding of ye County of York Thirteen Shillings Eight Pence halfpenny.

Jon. Baily, Warden.

September 20th 1702.

Collected then upon Haddenham breife ye Sum of Six Shillings.

Jon. Baily, Warden.

October 18th 1702.

Collected then upon Blaisdon breife ye Sum of Six Shillings & one penny.

Jon. Baily, Warden.

December 27o 1702.

Collected then upon Congleton Breife Six Shillings & ffive pence ffarthing.

Jon. Baily.

December 27o 1702.

Collected then upon Rolleston Breife ye Sum of Six Shillings.

Jon. Baily.

July 3? 1703.

Collected then on Shutsford Breife in ye County of Oxon five shillings six pence.

Thos. Houghton,
Warden.

July 11th 1703.

Collected on ffordingbridge breife Seaven Shillings & two pence ffarthing.

Tho: Houghton.

August 8th 1703.

Collected then on Chepstowe Church breife Seaven Shillings.

Tho: Houghton, Warden.

August 29th

Collected then on Wrottesley breife Six Shillings Eight pence farthing.

Tho: Houghton.

October 3rd 1703.

Collected then on Tuxford breife ye Sum of Nine Shillings Eight pence.

Tho : Houghton,
Warden.

May 21st 1704.

Collected then in ye Parish Church of Ormeske for Wye Church in ye County of Kent ye Sum of Seaven Shillings two Pence.

7ber 24th 1704.

Collected then for Gt Massingham fire Seaven Shillings Six Pence. Ja : Barton Ch : Warden.

ffebruary 4th 1704.

Collected then for Stony-Stratford breif the Sum of Six Shillings & three half Pence.

ffebruary 25th 1704.

Collected for South-Molton breife ye Sum of Ten Shillings & Seaven Pence.

March 5th 1705.

Collected then in ye Parish Church of Ormeske for Wapping breife ye Sum of Eighteen Shillings.

Ja : Barton, Warden.

June 15th 1705.

Collected then for Church-Minshull in ye County of Chester ye Sum of Thirteen Shillings ffour pence.

Ja : Barton, Ch : Warden.

September 9th 1705.

Collected then in ye parish Church Tho : Allen of Rollaston's 2d Breife Seaven Shillings.

By me
Henry Webster,
Ch : Warden.

December 16th 1705.

Collected then in ye parish of Ormeske upon All Sts in Oxford breife ye Sum of Thirteen Shillings ffour pence half Penny.

Hen : Webster Ch : Warden.

January 1705.

Collected then in ye parish of Ormeskirke for Seamens Widows & Orphans Sixteen Shillings & ffour Pence, halfe Penny.

Ch : Warden, Hen : Webster.

March 30th 1706.

Collected for Charteris breife in ye Isle of Ely ye Sum of ffive Shillings and ffive Pence halfe Penny.

Ch: Warden, H: Webster.

Aprill 14th 1706.

Collected then on Bradmore breife ye Sum of Eight Shillings.

Ch: Warden, H: Webster.

June 30th 1706.

Collected on Margans Lane in Southwarke ye Sume of Thirteen Shillings & Three Pence halfe Penny.

Ch: Warden Tho: Jumpe.

October 13th 1706.

Collected then on Great Torrington Breife ye Sume of Eight Shillings & Six Pence.

Ch: Warden, Tho: Jump.

November 3rd 1706.

Collected then on Basford Breife ye Sum of Eight Shillings & Six Pence ffarthing.

By Tho: Jump, Ch: Warden.

January 12th, 1706.

Collected then on Darlington Breife ye Sum of Eight Shillinges Three Pence.

By Tho: Jump.

March 9th, 1706.

On Beverley Church Breife ye Sum of Six Shillinges Eight Pence.

By Tho: Jump.

July 27th, 1707.

Collected then on Broseley Church Breife ye Sum of Six Shillings and Eight Pence, half Penny.

Wm Ollerhead, Warden.

October 12th, 1707.

Collected then on Towcester breife the Sum of Nine Shillings & Seaven Pence.

Wm Ollerhead, Ch. Warden.

9ber, 1707.

Collected on North Marston breife ffive Shillings.

9ber 23rd, 1707.

Collected on Spilsby breife ye Sum of ffive Shillings, & ffive Pence farthing.

10ber 14th, 1707.

Collected on Shire Lane Breife ye Sum of Six Shillings, & Six Pence.

15th January, 170$\frac{7}{8}$.

Collected then on Little Port breife ye Sum of Six Shillings & Seaven Pence.

ffebruary 1st, 170$\frac{7}{8}$.

Collected then on Charles Street in Westminster Breife Six Shillings and Ten Pence ffarthing.

ffebruary 15th, 170$\frac{7}{8}$.

Collected then on Heavitree Breife ffour Shillings & Six Pence.

March 1st, 170$\frac{7}{8}$.

Collected then on Orford Church Breife ye Sum of ffive Shillings & five Pence.

Wm Ollerhead, Warden.

March 21st, 170$\frac{7}{8}$.

Collected then on Southam Breife Seaven Shillings.

Wm Ollerhead, Ch: Warden.

11th Aprill, 1708.

Collected then on Dursley Church breife ye Sum of Seaven Shillings, Two Pence.

Wm Ollerhead, Ch: Warden.

25th Aprill, 1708.

Collected then on Shadwell Breife Six Shillings Nine Pence.

Wm Ollerhead, Ch: Warden.

9th of May, 1708.

Collected then on Oberbarmen breife Six Shillings Three ffarthings.

Wm Ollerhead, Ch: Warden.

July 4th 1708.

Collected then on Lisburne breife in Ireland Ten Shillings & Three Pence halfe Penny.

Sam: Wood, Warden.

August 29th 1708.

Collected on Wincanton Breife ye Sum of Nine Shillings & three farthings.

7ber 12th 1708.

Collected on Alconbury Cum Weston Breife ye Sum of Nine Shillings and a Penny.

8ber 3rd 1708.

Collected then on Greatt Yarmouth breife ye Sum of Six Shillings.

24th October, 1708.

Collected then on Bewdley breife the Sum of Six Shillings & Six Pence.

Aprill 10th 1709.

Collected then on Edinburgh breife Elleaven Shillings Nine Pence farthing.

July 17th 1709.

Collected then on Holt Market Breife in ye County of Norfolk Eleaven Shillings Eight Pence halfe Penny.

Richd Moorcroft, Warden.

August 28 : 1709.

Collected then on Lanrilling Church breife Six Shillings Seaven Pence.

September 11th 1709.

Collected then on Harlow Church breife Seaven Shillings & one Penny.

September 18th 1709.

Collected then on Stoak breif ye Sum of Six Shillings & Two Pence ffarthing.

ffebruary 5th 170$\frac{9}{10}$.

Collected then on Mittan breife in Courland ye Sum of Six Shillings & Eleaven Pence.

July 9th 1710.

Collected then on Ashton Super Mercy breife in Cheshire Nine Shillings & Ten Pence Three ffarthings.

Jos : Shaw, Ch : Warden.

August 13th 1710.

Collected then on Chalfont St. Peters Eight Shillings & Two : Pence.

October 8th

Collected then on Stockton Church breife Nine Shillings & Ten Pence ffarthing.

November 5th

Collected then on North-fleet and Durant breife ffive Shillings and Two Pence.

November 19th

Collected then on Rotherhith Wall ye Sum of ffive Shillings & Two Pence.*

December 3rd.

Collected then on Rotherhith breife ye Sum of Nine Shillings Six Pence.*

* That history does oft repeat itself we have no room to doubt, and even calamities too seem to have periodical recurrences. The papers lately recorded that the high tides of last month (March, 1874), laid the whole parish of Holy Trinity, Rotherhithe, under water, to the depth of three feet, and wrought so much destruction in the dwellings of the inhabitants, that 300 poor families were requiring immediate help. As fire, flood, and famine were among the general causes of these collections, one is forcibly reminded by recent occurrences, that what has happened may happen again, as here, in any other locality.

December 31.

Collected then on Pavingham breife ye Sum of ffive Shillings & Two Pence farthing.

ffebruary 4th 1710.

Collected then on Ensham breife in Oxon Six Shillings & Six Pence.

March 25th 1710.

Collected then on Twyford breife in the County of Berks Six Shillings and one ffarthing.

Aprill 1st 1711.

Collected then on Cardigan breife ye Sum of Eight Shillings & Six Pence.

6th May, 1711.

Collected then on Ide breife in ye County of Devon five Shillings & Seaven pence half penny.

Jos. Shawe, Ch : Warden.

June 17th 1711.

Collected then on St. Maries in Colchester breife ye Sum of One Pound ffour Shillings & Six Pence.

Ricd Pemberton, Ch : Warden.

On Edinburgh Breife Seaven Shillings & three Pence.

On St. Hellens breife five Shillings & a Penny.

On Cockermouth breife Six Shillings.

On Wishawe Breife ffive Shillings & ten Pence ffarthing.

10ber 17th 1711.

Collected then on Woolwich breife ye Sum of Ten Shillings & ffour Pence ffarthing.

March ye 9th 17$\frac{1}{2}\frac{1}{2}$.

Collected then on ffadmore breife ye Sum of Ten Shillings & two pence farthing.

July 6th 1712.

Collected then on Long Melford breife ye Sum of Seaven Shillings & Nine Pence half Penny.

August 3rd 1712.

Collected on Ricd : Salters breife Eight Shillings.

Jo : Heyes Ch : Warden.

August 31, 1712.

Collected on Thames Street breife Seaven Shillings & Eight Pence ffarthing.

September 21o 1712.

Collected then on Empsons breife Eight Shillings & Eleaven Pence.

October 19th 1712.

Collected then on West Tilbury breife Six Shillings Three Pence half penny.

November 16th 1712.

Collected then on Adderley breife ffive Shillings & Eleaven Pence Three ffarthings.

November 18th 1712.

Collected from House to House on Whitchurch breife One pound fifteen Shillings & Three ffarthings.

January 4th 17$\frac{12}{13}$.

Collected then on St Thomas Pensford breife Six Shillings & Nine Pence.

ffeb : 22o 1712.

Collected then on Colleorton breife in Leicester Seaven Shillings & Two Pence.

March

Collected then on Little Buckhill breife Eight Shillings & four pence ffarthing.

Aprill

Collected then on St Clements breife eight Shillings & two pence half penny.

May

Collected on Battlebridge breife from house to house Sixteen Shillings & Three Pence.

May, 31, 1713.

Collected then on Southwell breife fifteen Shillings & two Pence.

Jon Heyes, Draper
Ch : Warden Ormeske.

June 29th

On Woodham ferrys breife Eight Shillings two Pence farthing.

July.—On Burton breife ffifteen Shillings & four Pence.

August.—On Warmingham breife Seaven shillings eight Pence.

September.—On Wm Adams breife Eight Shillings & Six Pence.

October.—On Rudgeley Brief eight Shillings Six Pence three farthings.

November.—Collected on St Margt att Cliffe Eight Shillings & Eight Pence Three farthings.

December.—On St Mary Church Eight Shillings, and four pence.

January.—On Witheridge breife Ten Shillings & ffive Pence.

ffebruary.—On Shipwash breife Thirteen Shillings & Eleaven Pence.

March.—On Leighton breife nine Shillings & Six Pence half penny.

Aprill.—On Watford Breife Eight Shillings & Eleaven Pence half penny.

July 4th 1714.

On Dorchester breife Ten Shillings & Ten Pence.

Hen : Brooke, Esqre Ch : Warden of Ormskirk.

On Burslem breife Eleaven Shillings & nine Pence.

On St John Baptists Church in South-over nine shillings & six Pence Three ffarthings.

On Blandford fforum Breife Sixteen Shillings & One Penny half penny.

On Warwick & Preston Baggott breife ye Sum of Ten Shillings & Seaven Pence.

On Bottisham breife ffifteen Shillings & One penny half penny.

On Torksey breife in County Lincoln Twelve Shillings & Three Pence & Three farthings.

On All Sts in Derby breife Thirteen Shillings & nine Pence ffarthing.

On New Shoreham breife in ye County of Sussex ffourteen Shillings & five pence.

On Ruthin breife Twelve Shillings & one Penny ffarthing.

June 26th 1715.

Collected then on St Giles in Newcastle under Line Church breife Eleaven Shillings Eight Pence.

Ja : Worthington, Ch : Warden
of Ormeskirke.

July 31.

On Kentford breife in Suffolk nine shillings and a farthing.

August 14.

On ye Cowkeepers breife ffifteen Shillings & Ten Pence half penny.

September 18th

Collected then on Dryneton and Slimbridge Eleaven shillings but three ffarthings.

October 9th

Collected on St Marys Church in Litchfield Seaven Shillings Six Pence.

November 27th 1715.

Collected then on Sunderland breife Twelve Shillings Six Pence.

January 28th 1715.

Collected then on John Arons breife in ye County of Salop ye Sum of nine Shillings & Ten Pence.

March 11th 1715.

Collected then on Blymhill Church breife nine Shillings & five Pence.

July 15th 1716.

On Upton & Tempsford breife Eleaven Shillings & two pence.

Mr. Abra : Orme
Ch : Warden
of Ormeskirke.

September 9th

On Ricd Wright breife Seaven Shillings & Six pence farthing.

October 14th

On Spalding breife Sixteen Shillings & Eight Pence.

November 16th

On Thames Street breife ffourteen Shillings & Two Pence.

January 20th

On Overy St. Mary briefe nine shillings and two pence three farthings.

ffebruary 18th

On Hounds-ditch brief nine Shillings.

March 28th

On Chelmarsh brief Seaven Shillings & Eleaven Pence ffarthing.

April 19th

On Ridgmont brief nine Shillings and three Pence.

* * * *

May 24th 1719.	£	s.	d.
On Old Weston brief	0	10	1
On Headington brief	0	9	3
On Old Radnor & Habberley Brief	0	10	1
On Biggleswade brief	0	11	5
On Deeping St. James's brief	0	8	4½
On Hinstock brief	0	10	2
On Thrapston brief	0	10	10
On Bedford Rowe brief	0	9	6
On Cheltenham brief	0	11	6
On Hartle poole brief	0	10	3
On St. Jon. Baptists Church—			
Ormskirke	1	16	0
Burscough	0	4	3
Latham	0	9	8
Scarisbrick	0	10	0½
Bicurstaffe	0	0	0
Skelmersdale	0	1	10
	3	1	9½

[The record of Bickerstaffe blank must have been intended as a reproach, if any attempt at collecting was made.]

* * * * *

One can hardly help being struck, while going over the foregoing list of collections, with the general similarity to be observed in the amounts usually collected; and coming to the conclusion that the church-going people of the period must have been regular, both as to the discharge of their public religious duties, and also as to their benevolence. This warrants the impression that they gave according to rule, as was the ordinary custom with those who were religiously disposed in former times. There is too much reason to believe that people give now as they seem able to spare of their superfluities, whereas then they gave as a sacrifice from their necessities. Such is the difference between giving as a fashionable habit and as a religious obligation.

THE DETERIORATION OF THE MERSEY.

By Joseph Boult, Esq., F.R.I.B.A.

(Read February 19th, 1874.)

The navigable condition of the Mersey is a subject that must ever be of interest to those who dwell upon its banks, and live upon the proceeds of its waters; yet the number of those who are able to take intelligent interest in the processes by which its condition is affected is probably very limited: so limited, that those processes are usually considered due to causes recondite and technical, and only to be understood by a privileged few.

As I believe there are not many now living who have given as much attention to those causes as myself, it may be permitted to me to invite a consideration of views which are the result of many years of careful study; especially at this season, when the principal entrance is again in a critical state—passing through one of those crises which have more than once threatened to close the river against all comers, and to divert the favours of commerce from its shores.

The treatment of harbours appears to be largely empirical. Yet I believe that with due inquiry it may be made thoroughly scientific, and based upon a few definite principles, the application of which must be modified by circumstances and experience, as in the treatment of other morbid processes.

There is, perhaps, no surer indication of empiricism than the confusion of maxims with axioms. Yet surely they are very different. The maxim, like a proverb, embodies the result of shrewd, casual observation; the axiom is the result of a long series of observations, carefully conducted and then

critically compared before definition is attempted. For example, it is a maxim, frequently repeated, that the permanence of the entrances to the Mersey depends upon the careful preservation of the backwater; by which is meant that the receptacle into which the flood pours its volume shall not be reduced in capacity. The correct expression, I apprehend, is different; namely that the amount of backwater should be proportioned to the work it has to perform: this is axiomatic. Applied practically, it means that if, from any cause, there be a diminution in the rate of deposit in Liverpool Bay, the scour will be more effective, or may be reduced; but if the rate of deposit be increased, then the scour will be less effective, or must be increased, provided the condition of the channels, under each change of circumstances, is to be maintained.

In January, 1860, the Acting Conservator observes:—"It "is as remarkable as fortunate, that the changes which have "taken place in the sea-channels, during the last twenty "years, have been for the better; every new channel being a "decided improvement on the old. This desirable result," he says, "may be fairly attributed to the careful preservation "of the 'tidal backwater' in the upper estuary, and, also, to "the prevention of any artificial works outside the entrance "of the river, which would check or divert the volume of tidal "wave from rushing unimpeded up the river. As long as "both these objects are properly attended to, and the "'contracted vein' shape given to the entrance, there will "always be a good and safe channel into Liverpool."

In 1855, the Conservator compared the "contracted vein" "to an hour-glass, with its narrowest section at Seacombe "Point;" and states it is "a form that admits of the greatest "possible quantity of water flowing in and out of the upper "estuary during each tide, and therefore the best possible "shape for preserving and scouring out the sea-channels."

The "contracted vein" has been fully completed upon lines laid down, I believe, by the present Acting Conservator: the capacity of the upper estuary is believed to be greater now than it was in 1860, therefore the "tidal backwater" has been carefully preserved: and, except in Bootle Bay, "artificial works "outside the entrance of the river" have been prevented: the works in Bootle Bay have been sanctioned by the Conservator, and therefore, it is to be presumed, are, in his opinion, innocuous: and yet,—the channels are not preserved! All the conditions laid down in 1860 are carefully observed; but the promise of 1860 that "there will always be a good and "safe channel into Liverpool" is not fulfilled. Yet in 1873, when recording that the adverse changes "in the Queen's and "Crosby channels present conditions less favourable to navi-"gation than have been recorded for many years," he says, they show "most forcibly the importance of maintaining the "full scouring power of the backwater, by preventing en-"croachments on the tidal area of the upper estuary; and the "necessity of adopting the best methods available for miti-"gating the effects of deposits in the bed of the river and in "the sea-channels."

It might be supposed from this last quotation, that the gallant admiral had been treated as Cassandra was at the siege of Troy: that he had correctly predicted the evil results of a given policy, if it were adopted; that, notwithstanding all he could say, that policy was adopted; and that all the evils predicted naturally followed. But I have carefully examined all his reports for thirty years, from 1844 to 1873, both included;*—years during which many works have been constructed on the Mersey, calculated to have momentous influence on its future history;—and I do not find that his remonstrances and suggestions have been in any case neglected,

* *Mersey Papers*, Part I. London, 1874.

except in the disposal of the mud and sand daily dredged out of the Liverpool docks. In 1843-4 the dredgings amounted to 213,000 tons for the whole year: they are now estimated to be equal to 600,000 tons. Doubtless these figures are very large, and, taken by themselves, look rather serious; but, if the largest amount be divided by the number of working days in the year, the amount daily is less than 2000 tons, or than 1000 for each tide, the average for each hour being 80 tons; an almost imperceptible addition to the silt which the Mersey habitually holds in solution. The materials for comparison are, fortunately, available. In a communication to the British Association, in 1837, Admiral (then Captain) Denham, at that time Marine Surveyor, stated that he had analysed the tide in its passage from the ocean and back again. Taking the average of springs and neaps, he found the quantity of matter held in solution to be 330,989 cubic yards upon each *flood*, and 379,054 yards upon each *ebb*, or an average of 60,200 cubic yards per hour. If it be assumed that each ton of dredgings contains $1\frac{1}{4}$ cubic yard,* then 80 tons would be equal to 100 cubic yards, as against 60,200 yards; or $\frac{6}{600}$ per cent. If it be assumed that the whole of the dredgings are carried away by the ebb, the per-centage would be not quite double, or $\frac{3}{600}$. Thus, it appears that to lay so much stress upon the injury done by the dredgings, whilst the water is so burdened from other sources, is a veritable straining at a gnat, whilst the camel passes, not only without impediment, but almost without notice. When Admiral Denham explained the large amount of silt which the Mersey water contained, Professor Sedgewick remarked, it was evident that "the "quality of *Mersey* is not strain'd."

The source whence this enormous quantity of silt is derived

* A cubic ton of sand is said to contain 23·5 or 24 feet; a ton of clay, 17 feet; of earth, 18 feet; of water, 37·5 feet. As the silt, a mixture of sand and earth, contains much water, I have assumed that a ton may contain $1\frac{1}{4}$ cubic yard. The detritus from abrasion of the river's bed must not be overlooked.

invites inquiry ; for, as, according to Admiral Denham, the amount in suspension on the ebb is much greater than on the flood, (in the proportion of 33 to 29,) it is by the ebb that the banks are nourished and the channels silted up and changed.

If the streams which supply the fresh water of the Mersey be examined, it will be found that the quantity of silt held in their waters is quite inadequate to supply the enormous quantity ascertained by Admiral Denham. Those streams, besides others of less note, are, the Gowy, the Weaver, the Mersey above the tidal range, with its feeders, the Bollin, Irwell, and Tame. As the quantity of silt is so small, some persons have supposed that the large amount deposited must be derived from the sea coast, and be carried in by the flood and by the prevailing winds. But Admiral Denham's figures entirely preclude that source, for the ebb tide contains much more silt than the flood ; the proportion being 33 cubic inches in every yard of the ebb, against 29 inches in each yard of the flood. The difference between 29 and 33 must therefore be obtained by the ebb tide in its transit to the sea ; a conclusion which derives confirmation from the state of the ebb during neap tides in dry seasons, when the water is usually very clear. Now, during the last thirty years, the policy which has governed the conservancy of the Mersey has been embodied in the maxim, " The backwater cannot be too great, therefore increase it in every available way." There being a certain analogy between tidal action and that of a pump, the removal of impediments, and the perfecting of the contracted vein, have enabled the tidal pump to send more water into the upper estuary, which serves as the principal receptacle ; and so may be used as representing the whole. But thirty years ago the receptacle then existing was filled by the spring tides, and more than filled, as shown by the fretting away of its shores—and consequently all the additional quantity, which

has been pumped into that receptacle, has not only required, but has produced, an enlargement of the receiver. This has been accomplished by washing away the enclosure; land has been absorbed by the flood tide and carried away by the ebb. Thus every additional cubic yard of tidal "backwater" which has been stored in the reservoir has occasioned the displacement of a cubic yard from the enclosure. Consequently, the supply of silt has been unfailing; and it is not impossible that a repetition of Admiral Denham's experiment, which is very desirable, would show that the ebb is even more saturated with silt than it was in his day, now nearly forty years ago.

The Mersey Conservancy Act was passed 30th July, 1842; and Admiral (then Captain) Fitzroy was the first Acting Conservator under its provisions. In January, 1843, he presented to the Conservators his annual report: unfortunately the only report he prepared. In it he draws attention to the many thousand tons of alluvial land which are displaced annually by the action of the river and its feeders. The following description is very instructive, and merits grave consideration:—

"The falling of these earthy cliffs, now going on quite "unchecked, is a subject deserving the attention of all who "are interested in the navigation of the Mersey. Dry "weather, rain, frost, and the undermining action of the "water, combine to wear away these low cliffs of friable earth "in a surprisingly rapid manner, and all their detritus is "swept into the river. One dry season alone, if followed "by much rain, and then frost, as is so frequently the case, "will cause the fall of thousands of tons of valuable earth, "all of which is speedily washed away. I measured some "places on the shore (now bare sandstone, but formerly "covered by a layer of earth several yards in thickness), from "which a mass of good soil, about twenty feet in depth and

"thirty in width, had been carried away during the last ten "years only. About Dungeon Point, the destruction I "witnessed in December last (*i.e.* 1842) was still more "remarkable. Along the whole length of the cliffs (on "which there had been woods, now nearly gone), yards of "surface, with trees standing, and all the soil beneath their "roots, to a depth of twenty or thirty feet, had recently slid "down to the stony beach below, and would soon be washed "away. Trees stood upright on the flat shore, within the "reach of high tides; and seemed to be left there unnoticed, "except by passing boatmen who wanted fuel.

"Some of the most fertile fields are thus dwindling away. "A farmer on the spot told me that a field adjoining the cliff, "for which he pays rent as so many acres, is not near that "size now, having lost much by the fall of the cliff since he "took his lease. The wood just mentioned as being almost "gone, now indeed only a narrow slip along the edge of the "cliff, this farmer remembered of considerable width when he "was a boy, and used to go bird's-nesting there. In another "place, not far distant, an intelligent couple, about seventy "years of age, showed me a spot on the bare beach, now "washed by every high tide, where, in their recollection, "stood a gate across a road to a limekiln, built well above "high water mark; but since then entirely carried away with "the adjoining cliffs."

He adds, "It is much to be regretted that such a waste so "prejudicial to the farmer as well as to the landlord, and so "detrimental to the navigation of the Mersey, should be "suffered to continue without an effort being made for its "diminution."

Admiral Fitzroy's wise counsel was anticipated by Admiral Denham; and has been repeatedly enforced by Admiral Evans, the present well-known Acting Conservator; and also by Captain Graham H. Hills, Marine Surveyor: but as yet,

after forty years of warning and remonstrance, has been unavailing!

The waste is not confined to the cliffs of friable clay; but the rocky cliffs at the Dingle, and above and below Eastham Ferry, are undermined by the tides, split by the frost, shaken by the winds, abraded by the rains, and ultimately fall in masses on the shores, sometimes carrying trees with them; and then the ruin is consummated, and the rock becomes indistinguishable silt. In 1870, the acting Conservator refers to the washing away of the land between Eastham Ferry and Port Ellesmere; and states in illustration, that a mark was made on the cliff at Hooton in the month of April last (1869), and at the end of the year it was found that nearly four feet of the edge of the cliff had fallen into the river in the interval. As clay is composed of about two-thirds of sand and gravel, with one-third argillaceous matter, the material for sandbanks and sandhills is abundant. The abrasion of the rocky shores and of the sandbanks in the upper estuary furnish further contributions.

Some fifteen years ago the late Mr. Macfarlane, the steward of the Speke Hall Estate, informed me that for the preceding twenty-five years that estate had lost annually a yard in breadth for the whole length of its river frontage. During the interval, I believe the waste has continued at the same rate. It may be observed in other places, as between Dingle Point and Garston, and at Bromborough, between the Pool and New Ferry.

Much more information upon the loss of land on the margin of the Mersey will be found on reference to Mr. Eyes' *Littoral Survey of the Port of Liverpool*, "Trans. Hist. Soc.," vol. xxii (New Series x), Sess. 1869-70, p. 171.

Lieut. Murray Parkes and Captain Graham Hills, in their joint *Report and Memoir of the Survey of the River Mersey during the years* 1860-61, p. 7, state the loss between

Garston Salt Works and Dungeon Mills to be at the rate of as "nearly as possible 1 foot per annum;" but there would appear to be some fallacy in this statement, as the result is so different from the information obtained by Admiral Fitzroy and others; partly the result of actual measurement.

From the foregoing facts, it is clear that a grievous mistake has been committed through an inconsiderate adoption of the maxims—that the tidal backwater must be preserved, and that in no case can there be too much backwater: * a juster appreciation of the axiom, that the backwater must be proportioned to the work it has to perform, would have drawn attention to the fallacy of supposing there was any advantage in augmenting a backwater in which the quantity of silt was augmented in the same, if not greater, ratio. It would have been seen that, inasmuch as the construction of new docks in the lower Mersey augmented the rush of water into the upper estuary, those extensions, if not suspended, must be accompanied by such works in the upper estuary as would prevent any addition to the silt. Then the augmentation of the water would have caused a dilution of the silt; that is, the ratio of silt to water would have been reduced; and a beginning made towards its practical elimination. But, under the policy pursued, the candle has been burnt at both ends; and the process adopted for improving the navigation of the Mersey resembled the task imposed upon the Devil, of filling a sieve with water.

The principal reason why the shores of the upper estuary have not been protected as required, is financial. The question naturally arises, By whom are the funds to be provided? To solve this, it is necessary to determine under what circumstances the necessity for expenditure arises. This is clearly due to the demands of commerce; and thus it

* Report of Messrs. John and George Wilkin on "Mersey Conservancy," (Printed by order of the House of Commons, 4th August, 1840,) p. 2.

is, by those who thrive on the commerce of the Mersey that the funds should be provided. They may be roughly assumed to be the various towns and townships which border the Mersey, and other interests; and from them the funds may be raised upon their rateable value. Clearly the land-owners, as such, should not bear the burden: they have been grievously injured already, for they have lost irrecoverably thousands of acres. It is questionable whether they should not be compensated; especially, when the Acting Conservator Fitzroy suggested that the tidal backwater would be increased by the aggressive action of the flood tide, if the narrow passage at Runcorn were enlarged; "because it "would admit more flood to eat away the yielding soil," and, "would allow the ebb to escape more quickly; carrying off, "therefore, in suspension much matter that, under the "existing state of the channel, would be deposited above the "narrow passage." It may be urged that other places, which do not border on the Mersey, benefit through their proximity; but many of those will be found to have their special burdens resulting therefrom; and, taken as a whole, the basis proposed seems to be reasonable, and as fair as any which can be adopted.

This, however, is a branch of the subject somewhat foreign to the proper treatment of the river to secure its immunity from further deterioration, and its general improvement.

Another fallacy, which has been productive of much confusion respecting the scour of the sea-channels, is concealed in the maxim—that water ebbing from the higher parts of the Mersey is infinitely more valuable than that from the lower parts.

If correctly expressed, this means, that the water from Woolston Weir—the limit of the tidal range, and four miles above Warrington Bridge—is more valuable for the purpose of effecting a scour on the bar than from any other part of the

tide's course. The bar of the Queen's Channel is about ten miles below the Rock lighthouse, and Woolston Weir is about thirty miles above the Rock: thus the extreme range from the bar to the Weir is forty miles. Admiral Denham ascertained that the water of the flood and ebb moved respectively at the following maximum velocities, that is, in the straits, narrows, contracted vein, or bottle neck:—

	THE FLOOD.	THE EBB.
1st hour	4 miles	4½ miles.
2nd ,, ...	6¼ ,, ...	7¼ ,,
3rd ,, ...	7 ,, ...	7 ,,
4th ,, ...	6 ,, ...	5¾ ,,
5th ,, ...	3 ,, ...	4½ ,,
6th ,, ...	1 ,, ...	2½ ,,
Transitu	27¼ miles.	31½ miles.*

Giving a total transit by the flood of 27¼ miles in 5 hours 20 minutes; and by the ebb of 31½ miles in 6 hours 30 minutes. Thus it follows that, even if this maximum velocity were maintained throughout the range of tide, the water of the ebb from Woolston Weir, if unobstructed, could not reach the bar, but would descend only to a line a little below the Rock Point, which is about ten miles short of the bar. The ebb, however, would be obstructed by the young flood; for the tide does not attain its full height at Woolston until 2½ hours after it has been high water on the bar: consequently the tide has turned on the bar; and the flood is 2½ hours old when the ebb begins at Woolston.

Being of that age, the flood would of course be advanced up the Channel; and, according to Denham's table, have run some 13 or 14 miles: on the other hand, the ebb from Woolston would have run only 3 hours, or 18 or 19 miles downwards; that is, abreast of Speke and Hooton. So that the meeting of the last ebb and the next flood would be somewhere between that line and the Rock Point.

It will be seen that the above is a theoretical comparison

* Denham's *Mersey and Dee Navigation*, 1840, p. 134.

of two sections only of the tide, which are supposed to be unaffected by the intermediate sections. Not only is the period of high water at Woolston $2\frac{1}{2}$ hours later than on the bar, there is also a difference of 12 feet in the surface level of the two places, due to the heaping up of the tide in the upper reaches, and to the fall through the ebb on the bar.

Were it possible to restrict the influence of the scour of any tide to one section, namely, to that which begins to ebb as soon as it attains its utmost altitude on the bar, then the utmost distance from which the water of the ebb would reach the bar—still at the maximum velocity—would be a little higher than Halton Point. As, however, the series of sections, the velocities, and the periods of change are practically infinite, it is impossible accurately to determine the utmost verge from which the ebb reaches the bar; and further complication arises from the like variation in the succeeding tide which has attained nearly half its growth before the ebb at Woolston. From these considerations, I think it must be obvious that the value of water ebbing from the higher parts of the Mersey is very much over-rated, for the ebb which merely reaches the bar will not produce any useful effect; if it is to act as a scour, it must run over the bar, and carry the silt therefrom into deep water. Thus it will appear that the water from Wallasey Pool was more effective than the same quantity from a more distant station; and that the abstraction of Bootle Bay is a very serious loss. The deprivation of Wallasey Pool may, possibly, be compensated by the improved form which has been given to the "contracted "vein;" though it is questionable whether the velocity given to the stream of tide is not excessive. Though it maintains a maximum depth of 80 feet low water in that part of the river, it would be difficult to name any parties to whom that great depth is advantageous; while the objections to the *race* are obvious.

An equalization of the force of the current over the whole area will probably be deemed necessary whenever the due relation between tidal power and the removal of silt is recognized, and when all excludable silt is prevented from entering the river.

The water in Bootle Bay was conveniently at hand for passing to sea after the banks were uncovered; for, being ten miles from the bar, its ebb did not commence until about forty minutes later, and thus it operated to some extent in the channels, instead of being lost, as generally assumed, over the banks. Because the water in Bootle Bay did not undergo any apparent diminution of bulk, it was hastily assumed that it was not of service as scour; but the comparison of periods and places suggested above appears to show, that the efflux from Bootle was probably much more valuable than the same quantity from Woolston, or any other of the higher reaches of the Mersey. It had the further advantage of being more free from silt, inasmuch as there were not any margins of friable material to be eaten away, as above Runcorn Gap. It is true, some years ago there was a great waste of the clay cliffs north of Egremont; and it is equally true, that Mr. James Walker, the eminent civil engineer, after a careful investigation, stated that the material washed down was of a clayey nature, and did not remain on the rocky bottom or the bar, which was sand—adding, "I hardly think that even the words "*tending to injure the navigation*, can be applied to the "washing down of the soil," &c.* Mr. Walker, who is at issue with the authorities previously quoted, appears to have overlooked the fact, that clay contains a large proportion of sand, and on being rapidly dissolved in troubled water, the light argillaceous matter and the gravel would be separated from the sand, and each material reach its ordinary destination. It is noticeable, that the enclosure of Bootle Bay was not com-

* *Vide* Report ordered to be printed by the House of Commons, 23rd June, 1856.

pleted until 1872, a short length of the northern boundary, 240 yards, not then being built. The wall next to the river, however, was constructed some years previously, having been "completed to the point where it will form a junction with" Seaforth Battery, in 1866; and for all practical purposes affecting the channels, Bootle Bay may be regarded as to a large extent abstracted in that year. The enclosure, however, was completed as above mentioned, in 1872; and the same report in which that fact is recorded states, that the depth of water on the bar of the Queen's Channel was only eight feet at low water springs, instead of eleven to twelve feet, with a more direct course "than has been known for several years "past," as was reported to be its condition in the preceding year. During that preceding year, the Victoria Channel, after undergoing deteriorations of one kind or another, had silted up and entirely closed; the water which had passed by that channel was doubtless diverted, at any rate in part, to the Queen's Channel, thence the improvement—the spurt—in 1871; but the abstraction of Bootle Bay being completed, the Queen's Bar all at once silted up three to four feet! It is also to be observed, that the deterioration year by year of the Victoria Channel, and in other approaches from the sea, appears to have proceeded *pari passu* with the works of the North Docks. Until some other more satisfactory explanation is adduced, this conclusion is likely to appear probable; and it confirms the preceding observations upon the slight influences which can be exercised on the bar by water from remote parts of the estuary.

The dynamic phenomena of tides are so complex as to render difficult the comprehension of their effects. During the flood, the water under the influence of tidal impulse, is, as it were, pumped up into the river; but though the transit of the *impulse* is rapid, that of the *water* is comparatively tedious. The impulse travels forty miles in $2\frac{1}{2}$ hours, equal

to sixteen miles in the hour; the water during the 5 hours 20 minutes of flood travels twenty-seven and a quarter miles, or at the rate of less than five miles (4·81) in the hour. And this is the very highest average, namely in the contracted vein; in other places, and for the greater part of the whole distance of forty miles, the average velocity will not exceed one half of that maxmium. Thus, a drop of water on the bar, travelling at the utmost rate, will require 16 hours for its passage to Woolston; whilst the duration of the flood is only 5 hours 20 minutes: to this add 2 hours 30 minutes for the difference between high water at the two stations, and it will be found that 7 hours 50 minutes is the utmost time allowed by the duration of a tide; that is, one half of the time actually requisite. It is clear then that the alternations of high water in the upper parts of the river are due to the damming up of water already in the river basin, by the sea water which follows the tidal impulse upwards from the bar. Consequently the water which flows seaward, towards the close of the ebb, is fresh water mixed with a quantity of sea water, that has been detained in the basin ever since it assumed its present general form and condition. On a former occasion I attempted to show that, in early days, a portion of the upper estuary was occupied by a fresh water lake or mere: and that the upland waters on the Cheshire side passed to the sea by Wallasey Pool and the Leasowes; its embouchure being now occupied by the township of Hoose, a name very suggestive of such an origin; and that on the Lancashire side those waters passed by the Alt, entering the sea at Crossens near the mouth of the Ribble.*

It is well known that before the close of the 13th century, there was an important abbey at Stanlaw; and that the brethren were expelled at that time by irruptions of the sea. The extent of land on which stand the ruins of that abbey,

* *Pro. Lit. and Phil. Soc.*, 1872-3, xxvii, 249.

or rather of the cell to which it dwindled, is totally inadequate for the stately abbey and church of which descriptions exist; and such buildings could not be erected now without extending a considerable distance below high water of spring tides. For these and other reasons, I have conjectured that the surface of the lake was not higher than that of a tide rising 18 feet upon the Old Dock Sill. If those speculations are well founded—and what other explanations will accord with historic data?—a large part of the water which now occupies the upper estuary must have been supplied from the sea, when the mere or lake was absorbed, and the abbey overthrown. On the same assumption the complaints which have been made against those who have enclosed the marshes with embankments are unfounded; for the tide never had any legitimate right to flow over those marshes. It is not improbable that the embankments were formed long before the destruction of the mere for the purpose of protecting the marshes from freshets; and afterwards strengthened to resist the more powerful aggression of the sea-robber, or pirate, who destroyed the lake and the monastery, and drove the monks to Whalley. That same sea, with remorseless maw, has ever since been "eating away the yielding "soil," just as Admiral Fitzroy suggested it should be provided with additional facilities for doing, above Runcorn Gap.

It would appear, then, that the policy hitherto adopted for the conservation of the Mersey, should be almost entirely reversed. That, instead of aiding the tide to force more water into the river basin, and thus destroy more land and create more silt, the land should be protected wherever it is now exposed, and the strength of the impulse be left as it is, until experience shows the effect of reducing the quantity of silt. When the water is less charged with silt, it will then be able to take up some of that which is so detrimental in the upper estuary, and will work out deeper channels for its passage to

and fro. That, with respect to sand banks and other deposits in all parts between the bar and Woolston, they should not be considered as having any vested right to remain where they are. That something of the same vigorous policy which has been so beneficial on the Tyne and the Clyde, should be adopted, *mutatis mutandis*, on the Mersey; not only in the upper estuary, but in Liverpool Bay also. That the nettle which has been so much dreaded hitherto, should be firmly grasped; and, seeing how deep a channel has been scoured and maintained in the contracted vein, some effort should be made to secure an approximation to that depth, in all the approaches through the bay. The strength of the current in those channels appears never to exceed two miles in an hour, and the banks, being of sand only, yield to almost every capricious influence. Who can expect stability amid free sand? Yet it has been in attempting to obtain that impossibility that valuable sums have been expended, valuable time lost; and in consequence, it is to be feared, valuable ships with lives and treasure have become castaways. The casing of the sand need not rise higher than the tops of the banks, until experience shows that it is desirable to raise it. Mr. George Rennie proposed to use wattled hurdles, and to employ natural agents to do most of the work; the cost would thus be moderate, and should any work appear injurious it can be readily destroyed and removed.

But here, we are met with another maxim—There always has been a channel, and if one outlet is closed, Nature will form another. When people vaunt their reliance upon Nature or Providence, it is usually that they may conceal their ignorance and inability, and to justify their censure of those who venture to think that for every ill some remedy may be found.

Perhaps, however, in the face of all the strong prejudice which exists, it will be more prudent to try experiments in the upper estuary, care being taken to preserve just as much

backwater as may be found needful, and diminishing the occasion for any scour to the utmost. If there were never any silt, scour would not be necessary; but as there will always be some silt, there must always be as much scour as will prevent the deposition of that silt.

The formation of the upper estuary closely resembles that of the lower, including a "contracted vein" at Runcorn Gap; the form and proportions of which, may be improved *secundum artem.*

Last August, when the steamer "City of Richmond" came to her station from the Clyde, she reached the bar at 7-15 a.m., but in consequence of the insufficiency of water, was unable to cross it until 11-30 a.m., suffering a detention of more than four hours. Being only in ballast, her draft would be light, and the detention being in August there was abundance of daylight. But the same vessel may have very different experience; heavily laden, and drawing much water, she may arrive on a dark, stormy winter's night, just when the ebb renders it imprudent to attempt to cross, and may have to lie on and off for much longer than four hours. It may well be doubted if this is the proper condition for the main entrance to such a port in the 19th century; and whether it is creditable to engineering science or to commercial intelligence.

The approaches appear almost as if they were returning to conditions similar to those which existed for about twenty years, 1813 to 1833, from which they emerged under Denham's supervision. That admiral is honourably distinguished by zealous efforts to collect facts upon which to base scientific treatment; unfortunately he was discouraged by those who then claimed to be the conservators of the Mersey: so the correct diagnosis, and consequently the sound regimen, have been indefinitely postponed.

There are other branches of the subject which invite attention, but they must be deferred to a future occasion.

THE DISPERSION OF BRITISH PLANTS.

By Thomas Comber, Esq.

(Read January 22nd, 1874.)

I.—Introduction.

Last session I had the honour of reading, before your Society, a paper on "the World-distribution of British plants." An attempt was therein made to arrange the members of our flora into certain groups, according to the area which they occupy outside of Britain, the larger groups being further subdivided into sections. The paper concluded with lists of species, in which a figure was attached to each group or section, indicating its extent of area or "degree of distribution." The lowest figure, 1, indicated the most limited area noticed—that of plants which are found only in Europe, in the countries bordering the Atlantic. From this the figures increased, as the areas became more extensive, until 12 represented the dispersion of the most widely ranging species, viz., those which occur not only in all three continents of the Northern hemisphere, but in more than one of the Southern continents as well. To each species was thus assigned a figure representing its degree of dispersion; and by averaging these figures we can ascertain the mean *specific* area of any order or class, or of any number of plants possessing in common some distinguishing feature. In the present paper I propose, by means of averages thus obtained, and carried for greater exactness to two places of decimals, to examine into sundry questions respecting the

dispersion of plants, many of which have already been treated of by different authors, and especially by Professor Alph. De Candolle in his *Geographie Botanique.*

In questions of this nature, the results obtained from the examination of the flora of only a single country cannot be regarded as by themselves conclusive: they require to be confirmed by similar investigations over a wider field. Still they have some value so far as they go; and the restriction of the field of observation may in some respects even possess advantages of its own. When the flora under examination is one that has been so well studied as that of Britain, all the species that compose it can be taken into account; for, being generally well known to botanists, they are the more readily recognised when met with elsewhere, and greater confidence can be felt that they are correctly identified. But when we seek to bring into view the plants of the whole world, not only do we find many species doubtful or imperfectly known, whose real geographical area is consequently quite uncertain, but we are also confronted with a large number of absolutely spurious species. It is unfortunately but too common for a plant, when met with in a fresh country, to receive a fresh name, and to be regarded as a distinct species; and as it is clearly undesirable to include all these reputed species, we are forced to make a selection. A doubt then at once arises whether the result arrived at may not be in some degree affected by the selection. If the basis of investigation must of necessity be a partial one, our first ground may as well be the whole of a well-known flora, as a more or less arbitrary selection of species.

II.—Dispersion with regard to latitude.

Wide range of Northern plants.—On considering the comparative area of plants, one of the first facts which cannot fail to attract attention is that Northern plants range

more widely East and West than those of more Southern latitudes. This is at once apparent from the lists we have under notice; for of Arctic plants therein enumerated 77 per cent. belong to the "Universal" division, *i.e.* are found in all three continents of the Northern hemisphere; of Northern plants 76 per cent. are Universal; of Temperate plants only 42 per cent; and of Southern plants the insignificant proportion of 6 per cent. Two of the causes which have been assigned for this appear evident, viz.:—1st. That the actual extent of ground which a plant has to cover to reach from one quarter of the globe to another is much less at a high than at a low latitude; and 2nd. That about the Arctic circle there is almost continuous land, as Asia is separated from America only by Behring's Straits. In the greater expanse of sea which now lies between Europe and America, the intermediate stations of the Faroes, Iceland, and Greenland serve as stepping stones; and the greatest interval between them, that between the Faroes and Iceland, does not exceed 230 miles. Under a favourable climate, and with a sufficient length of time, the spread of a species over land is easy; the chance of seeds being carried across sea, whether by winds, currents, or birds, increases as the distance to be traversed diminishes; and in Northern seas it is considered that icebergs serve as means of conveyance. It is obvious, therefore, that Northern species possess special facilities for migration between the Old and New Worlds, even under existing conditions; and possibly, at a tolerably recent geological period, conditions may have been still more favourable, as Europe and America may have approached nearer to each other than at present.

The effect of these influences can be perceived also among Temperate plants, many of which, although excluded by their occurrence at a lower elevation further South from being classed as Arctic plants, nevertheless stretch Northwards into Arctic regions, and can even now be aided by the superior

means of transit which there exist. How far they have done so may be inferred from the fact that of our Temperate plants, out of 279 ranging over the three continents, 194, or 70 per cent., have been recorded from within the Arctic circle ;* but out of 384 with a more limited range, 103, or only 27 per cent. Of the 443 plants included in the "Universal Division," 332, or 75 per cent., are at present found in the Arctic regions ;† and Mr. Darwin has further pointed out that in the Pliocene age, during the period of increased temperature which prevailed before the Glacial period, species at present confined to the more Southern latitudes were probably driven far to the North, and would, if they then existed, have had the opportunity of crossing by the bridge now rendered impassable to them by cold, and open only to plants which still stretch to the extreme North; while, on the other hand, during the Glacial period itself, Northern species would migrate into Southern regions, in the mountains of which many of them still survive as Alpine plants.

If we accept this theory of a glacial migration, it follows that (to use the words of Dr. Hooker) "the existing Scandi-" navian flora is of *great antiquity*;" and we thus have in their superior age a third cause of the wide diffusion of Northern plants, to which especially must be assigned their range from North to South.

Viewed with regard to their zones, our *native*‡ plants give the following average degree of dispersion :—

* Of the 85 species not yet recorded from actually within the Arctic circle, 31 have been found in Lapland, Iceland, or Greenland, and thus they closely approach it.

† Stress must be laid upon this point, as by Professor A. Gray's "Statistics of the Flora of the Northern States," out of 230 species common to them and to Europe, only 28 per cent. have been detected within the Arctic circle upon the American continent.

‡ Plants known, or even suspected, to be only naturalised in Britain have been excluded from all the comparisons in this paper, excepting in that one relative to weeds of cultivation.

Species.		Average.	Species.	Average.
69	Arctic	9·09		
124	Northern	8·82	490	8·84
297	Temperate, penetrating within the Arctic circle	8·79		
366	Temperate, not found within the Arctic circle	6·45	661	5·63
295	Southern	4·62		
Total 1151	.....	7·00		

III.—Dispersion as affected by Station.

Aquatic plants.—From the circumstance that a plant can, under favourable conditions, spread rapidly over land, it might be supposed that terrestrial plants would be the widest rangers; but this is just the reverse of the fact. Their number is so great, and the struggle for existence between them so fierce, that, if climatic or other conditions are in the least degree adverse, their progress is at once checked; and we consequently find that among terrestrial plants very few favoured and dominant species have attained a range over the whole world, and some of these only as weeds of cultivation, whose dispersion has principally been effected by human agency. It has long been noticed that, on the contrary, aquatic plants, in common with other fresh-water productions, are as a rule widely dispersed, and although their number is only moderate, a considerable proportion are cosmopolitan.

Besides the truly aquatic plants, whose leaves are altogether submerged or floating, there are many which may be regarded as semi-aquatic or palustral, as they grow on the edges of ponds and streams, in marshes, bogs, and wet places generally, and have their roots often below water. Such are found to have a higher degree of dispersion than plants usually met with in drier situations; the average areas of our British species are as follows:—

Species.		Average.
49	Aquatic	8·94
268	Semi-aquatic or palustral	7·93
834	Terrestrial	6·59

The tendency is most marked in those plants which belong to orders wholly or principally composed of aquatic or palustral species. Thus, of the 49 aquatic plants—

36	Nymphæaceæ, Haloragaceæ, Hydrocharideæ, Potomaceæ, Lemnaceæ and Marsileaceæ, average	9·11
13	belonging to other orders.....	8·46

and of the palustrals—

101	Droseraceæ, Pinguiculaceæ, Alismaceæ, Typhaceæ, Juncaceæ and Cyperaceæ, average	8·16
167	belonging to other orders.....	7·79

At first sight it seems that fresh-water plants, equally with land plants, would find the sea a barrier to their transit from continent to continent; and that, in addition, they would have in the land itself a serious obstacle to their passage from one river-basin or detached piece of water to another, but the spread of the American water-weed (Elodea canadensis) in Britain affords a recent and well-known instance of how readily the latter obstruction can be overcome. Mr. Darwin considers that the power of ranging widely, possessed by fresh-water productions in general, may arise from their having become fitted for short and frequent migrations from pond to pond, or from stream to stream, and thus simultaneously acquired the capacity for longer journeys. He also suggests that, as they are generally low in the scale of nature, and we have reason to believe that such beings change more slowly than higher organisms, they have had *a longer time* for their migration. In the case of plants, however, he seems to regard the extensive range as due not so much to any quality inherent in the plants themselves, as to a mere accident of their

station; for he attributes it mainly to "the wide dispersion "of their seeds by animals, more especially by fresh-water "birds, which have large powers of flight, and naturally "travel from one to another, and often distant, piece of water." He points out two ways in which dispersion by birds may be effected: by wading birds, when suddenly flushed, carrying away adherent to their feet some of the viscid mud in which they have been standing, which he shows by experiment is sometimes very highly charged with seeds; and by fishes swallowing seeds, and being afterwards themselves devoured by birds, in which case the seeds would probably be subsequently disgorged by the birds in the shape of pellets.

It must be borne in mind that the seeds of aquatic and palustral plants, being naturally adapted for a long continuance in water or wet mud, would be less likely than the seeds of land-plants to lose their vitality when carried by rivers to the sea; and might also have a greater chance of preserving their power of germination when transported further by ocean currents. It would be desirable to test by experiment whether the seeds, or rather the fruits, of such plants as Potamogeton and Ceratophyllum, or even as Alisma and Carex, will not withstand maceration in sea-water for a longer period than the seeds of land-plants.

Maritime Plants.—Professor De Candolle selects the whole of the two orders Plumbaginaceæ and Salsolaceæ as representatives of maritime or salt-loving plants; and finding that their mean specific area, calculated and expressed according to his method, is 10·3 against 4·5 that of flowering plants generally, he concludes that maritime plants, like aquatics, have a range more extended than the average. Of the eleven individual species which he names as instances of particularly wide distribution, six appear in our lists; yet, so far as the British flora is concerned, the degree of dispersion of salt-loving species, including those belonging to other orders as

well as to the two named by Professor De Candolle, is less than that of other plants.

Species.		Average.
111	Maritime	6·32
1040	Non-maritime	7·07

This discrepancy, and other similar ones that will be met with hereafter, no doubt partly arise from the limited scope of the present inquiry, confined as it is to British species alone, and from the entirely different methods by which the mean specific areas are ascertained and expressed; but I believe they are chiefly occasioned by the present calculations being based upon individual species, considered each separately, and Professor De Candolle's upon entire orders. In the present case, the two orders selected as representing maritime plants contain many species that are not maritime; and *vice versâ* many maritime species are found amongst other orders. The two representative orders happen also to be treated of in the later volumes of the "Prodromus," in which the geographical distribution is very fully given; while in the earlier volumes, containing many important orders reckoned as non-maritime, a much more limited area is frequently assigned to species than they have since been found to possess.

Calcareous Plants.—Those plants that evince in Britain a preference for chalk or limestone soils have a lower degree of dispersion than our other plants.

Species.		Average.
81	Calcareous	5·43
1070	Non-calcareous	7·12

The species classed as calcareous comprise, however, no aquatic or palustral plants; and as we have seen that such are the widest rangers, a more correct comparison is, perhaps, one confined to terrestrial plants. It is as follows:—

Species.		Average.
81	Calcareous	5·43
753	Other terrestrials.....	6·71

On the other hand, calcareous plants include an undue proportion of Orchids, an order that has only a limited specific range. Omitting these again, the comparison is :—

Species.		Average.
67	Calcareous	5·60
735	Other terrestrials.....	6·70

Sand Plants.—It is more difficult than in the case of calcareous plants to separate as a distinct group species that are partial to a clayey or a sandy soil. Clay plants, indeed, I find it impossible to distinguish satisfactorily, but I have taken out those plants to which our floras generally ascribe a preference for sand. They include some species that have been ranked above as maritime plants, such as Carex arenaria, Phleum arenarium, and Elymus arenarius, and give the following result :—

Species.		Average.
85	Sand-loving plants	5·81
1066	Other plants	7·09

or omitting aquatics and palustrals—

73	Sand-loving plants	5·52
761	Other terrestrials.....	6·69

Sylvestral plants.—The species to which such a station as "woods, copses, and hedges" is usually assigned may be divided into two lists. 1st, The trees of which the woods themselves consist: they will more fitly be noticed when we come to treat of dispersion in relation to habit. 2nd, The smaller shrubs and herbs which rejoice in the shade and shelter of the trees. Their average dispersion is :—

Species.		Average.
158	Sylvestrals	6·39
993	Other plants	7·09

In their case, however, the limitation of area appears to arise principally from there being no aquatics and hardly any palustrals amongst them: while, as there are no woods in the extreme North or at very high elevations, no Arctic plants can be sylvestral. Omitting aquatics and palustrals the average of "other plants" is reduced to 6·64; and further omitting Arctic plants it is reduced to 6·36.

Heath plants.—Species that are usually found on dry heaths, moors, and commons have also a rather limited degree of dispersion, the comparison between them and other terrestrials being as follows:—

Species.		Average.
35	Heath plants	6·31
799	Other terrestrials.....	6·60

Weeds of cultivation.—The greater number (70 out of 91) of the "weeds" now found in Britain are only naturalised here; and for the purposes of the following comparison these colonists have been included with our natives The weeds have been entered in the lists according to the area in which each is believed to be indigenous, except in a few cases in which it is quite impossible to decide where the weed is indigenous and where it has been introduced by man. The average of these, which may be termed their *natural* areas, is less than that of terrestrials generally.

Species.		Average.
91	Weeds of cultivation	6·10
743	Other terrestrials...	6·65

If, however, we regard, as Professor De Candolle has done, not the natural areas, but those to which the weeds have been carried by human agency, we have the average at once greatly raised. They have migrated widely with man: the greater number of those now found with us have been introduced into N. America; many are naturalised at the Cape, and in

Australia; and some in different parts of S. America. Their degree of dispersion, as introduced plants, is thus swelled to 8·78; considerably exceeding that of palustrals; and almost equalling that attained by aquatics.

Parasites.—The conditions necessary for the spread of parasitic plants are more complex; as some are not only affected by soil and climate, but also dependent on the existence of those species from which they draw their nourishment. It might therefore be expected that their mean specific area would be small; and such is the case with the few complete parasites that are found in Britain, belonging to the Loranthaceæ, Cuscuteæ, and Orobanchaceæ.*

Species.		Average.
9	Parasites	5·33
1142	Other plants	7·01

The Rhinantheæ, Monotropa, Thesium, and Epipogium, which are considered to be at any rate partly parasitic, have on the other hand, taken together, a rather high degree of dispersion; so that, including these, the average of

21	Parasites and semi-parasites rises to	6·52
1020	Other plants	6·77

From the above it would appear that plants which are confined to, or have a decided preference for, any *special* station, have as a rule a limited range; the main and very marked exceptions being aquatics and palustrals.

IV.—Dispersion in relation to habit and duration.

Trees and Shrubs.—According to Professor De Candolle's figures trees and shrubs have a much less extended range than herbaceous plants. In this instance his system of

* This does not agree with Professor De Candolle's figures, which give Orobanchaceæ and Cuscuteæ a higher, and Monotropaceæ a lower, than average specific area.

representative orders is in one respect exact, for many orders consist entirely or nearly so of ligneous species: but most of those upon which he has based his calculations are tropical or sub-tropical; and the Amentiferæ are excluded, to which belong so large a proportion of the trees and shrubs of temperate regions, and the mean area of which he remarks would increase the average of ligneous plants. Of our native trees only about a fifth (5 out of 24) belong to his representative orders; of our shrubs less than half (31 out of 75); and thus it happens that although the following comparison shows that our ligneous plants have a low degree of dispersion, the contrast is not so marked as in Professor De Candolle's figures.

Species.		Average.
24	Trees	6·13
75	Shrubs.....	6·47
99	Ligneous plants	6·38
1052	Herbaceous plants	7·06

None of our trees are "Arctic" or aquatic, nor have we any trees amongst our Cryptogams. Omitting such from amongst herbaceous plants also, the comparison is:—

24	Trees	6·13
881	Herbaceous plants	6·65

Some of our shrubs are Arctic, but none appear amongst aquatics or Cryptogams: omitting the two latter, we find—

75	Shrubs...	6·47
942	Herbaceous plants	6·80

Of our trees, only three are indigenous in America; but their average degree of dispersion is brought up by the compensating circumstance that only a small proportion is confined to Europe alone: in other words, our trees range

rather more widely than herbaceous plants over land, rather less so over sea. Reduced for the sake of comparison to percentages, the proportions are,—trees 12½ per cent., herbs 41 per cent., indigenous on both sides of the Atlantic; trees 8 per cent., herbs 20 per cent., found in Europe alone. In connection with, and perhaps partly accounting for, the small number of our trees that reach America, I may remark that, although the observations of Professor Heer and others prove that during the Miocene age trees flourished as far north as Spitzbergen and Arctic Greenland, few can withstand the rigour of the climate which now prevails about the Arctic Circle, or can take advantage at the present time of the bridge of almost continuous land above described as existing there. The percentages recorded from within the Arctic Circle are,—trees 7 per cent., herbs 41 per cent.

Creeping Rhizomes or Stolons.—Farmers know by experience how much more difficult it is to exterminate those weeds that have creeping rootstocks, or trailing and rooting stems or stolons. It is very hard to kill such a plant; and this extreme tenacity of life would be of material advantage in the struggle for existence; and if the species had existed long enough might enable it to attain a wide range. The British species thus benefited number

342	With an average of.....	8·10
809	Other plants average	6·53

A large proportion of our aquatics (about ⅔rds) have creeping rootstocks or stems, but this does not materially affect the above results. Omitting aquatics, the figures stand thus—

308	With creeping rootstocks, &c. ...	8·07
794	Without do. do. ...	6·45

Annuals, Biennials, and Perennials.—The average areas of our herbs, divided according to their duration, disagree entirely with Professor De Candolle's figures based upon the

plants of the whole world, by which Monocarpic plants appear more widely diffused than perennials, which of the former annuals have a more extended range than biennials. British herbs give the following result.

Species.		Average.
175	Annuals	6·35
31	Annuals or Biennials	6·13
23	Biennials	5·44
229	Total Monocarps.....	6·23
296	Perennials	7·31
27	Doubtful duration	6·70

In a synopsis of the flora of Spitzbergen, Malmgren remarks that the plants of that high northern locality are all perennials; and attributes it to the effect of occasional inclement seasons, which prevent the production of ripe seeds during the short summer, and thus prove fatal to species that have only annual roots, while the permanent stocks of perennials survive. It thus happens that, with the single exception of Gentiana nivalis, all species that I have classed as "Arctic" are perennial, and their wide range increases the perennials' average. Omitting Arctic plants the perennial degree of dispersion is reduced to 7 14, but even then exceeds that of Monocarps.

Of the representative orders selected by Professor De Candolle as being largely composed of annual species the principal is that of Gramineæ, which indeed contains $\frac{3}{8}$ths of the whole. In this respect our British grasses are different, the great majority of them (76 out of 94) being perennials.

V.—Dispersion according to character of the flower.

Structure.—Those differences in the structure of the flower which are considered most important for purposes of classification, and according to which the great classes of Exogens

and Endogens are broken up into divisions, are not accompanied in either class by any material differences in dispersion; but on comparing one class with another we find that Endogens give a higher average than Exogens, while the flowerless Cryptogams exceed both. The wide range of Cryptogams is perhaps attributable to their great antiquity, for the vegetation that flourished during the Coal era was almost entirely cryptogamic. Our sixty-one Cryptogams average 9·51, while our Phanerogams compare as follows :—

Species.		Average.
172	Thalamifloræ	6·98
205	Calycifloræ..... ...	6·52
306	Monopetalæ	6·41
92	Apetalæ	6·84
775	Total Exogens	6·62
129	Petaloideæ	7·23
186	Glumaceæ	7·55
315	Total Endogens.....	7·45

If, instead of dividing Endogens according to the whorled or imbricated arrangement of their floral envelopes, we regard rather their herbaceous or scarious condition, and thus include the Juncaceæ and Eriocaulon with the true Glumaceæ, the comparison stands :—

		Average.
103	Petalloid Endogens	6·81
212	Glumaceous do.	7·77

The average of petalloid Endogens is raised considerably by the aquatic orders Potomaceæ and Lemnaceæ; and somewhat by the palustral order Alismaceæ. Omitting aquatics and palustrals, the average of petalloid Endogens sinks to 5·41 against 6·80, that of other terrestrial Phanerogams.

Inferior ovary.—Professor De Candolle remarks that not a

single order having an inferior ovary has a wide range. This is not exactly the case amongst British plants, as our Onagrariaceæ have a high degree of dispersion, 8·62 : indeed, amongst the 27 orders of Phanerogams in our flora containing 10 or more native species, they are surpassed by no order of Exogens ; and only by the aquatic Potomaceæ amongst Endogens. Our figures, however, corroborate the main fact, that plants with an inferior ovary are on the average less widely dispersed than other Phanerogams.

Species.	Average.
268 with ovary inferior.....	6·17
822 other Phanerogams	7·08

It is difficult to see in what way inferior ovaries can be any special disadvantage.

Conspicuous flowers.—Mr. Darwin has shown how important a part is played by insects in the fertilization of flowers ; and how great a benefit is the cross-fertilization effected by their means. He considers that all plants with conspicuously-coloured flowers, powerful odours, or honeyed secretions, are fertilized by insects ; " and he concludes that " before honey-feeding insects existed, the vegetation of our " globe could not have been ornamented with bright-coloured " flowers, but consisted of such flowers as pines, oaks, " grasses, nettles, &c."* If this conclusion be correct, plants with inconspicuously-coloured flowers have probably attained a greater *age* as species, and, having thus had a longer time for their migration, we may expect to find that they have also a high degree of dispersion, which will be most conspicuous in orders that are entirely composed of such plants. On dividing our British plants, to ascertain whether this is the case, I find not only that it is so, but also that plants with *white* flowers are more widely dispersed than those with

* The quotation is from Dr. Hooker's address to the British Association.

coloured, a result which I was not expecting. Further analysis shows that plants with flowers sometimes white and sometimes coloured, such as the Wood Anemone, many of our Violets, Thistles, and Campanulas, are intermediate in this respect, having a more limited range than those whose flowers are always white; and on the other hand a more extended range than those with flowers always coloured. The averages compare as follows :—

Species.		Average.
316	of whole orders having inconspicuous flowers	7·71
64	other plants with inconspicuous flowers	7·19
380	Total with inconspicuously-coloured flowers	7·62
179	with flowers always white	7·04
176	with flowers variable in colour	6·66
355	with flowers always coloured	6·05

Averages taken out separately for yellow, red or pink, blue or purple, and parti-coloured flowers do not differ much from each other, or from the average of coloured flowers taken all together.

Although the wide range of green, and to a smaller extent of white-flowered plants, has been named in connection with the presumed greater age of the species, I by no means wish to contend that it is entirely, or even mainly, caused thereby. Other influences have probably contributed, such, for instance, as that of *latitude*. It is notorious that the flowers of tropical or sub-tropical countries are more brilliantly coloured and showy than those of temperate and Northern regions; and we have seen that, physical conditions being specially favourable for the migration of the latter from one quarter of the globe to another, they have attained a high degree of dispersion, by which the average of inconspicuously-coloured flowers may be appreciably raised. Amongst British Phanerogams

of those classed in our lists as "Southern," 58 per cent. have flowers always or sometimes coloured; of "Temperate" plants 47 per cent.; of "Northern" 43 per cent.; and of "Arctic" only 31 per cent. If, however, a comparison be made for each zone separately, the degree of dispersion of plants with inconspicuously-coloured flowers is still found to exceed that of white-flowered (except in the Northern zone), and yet more that of coloured-flowered. To the extent shown by the means of the four zones in the following table, this result may be regarded as the effect of other influences than that of latitude.

Zone.	Flowers.					
	Inconspicuous.		White.		Variable and Coloured.	
	Species.	Average.	Species.	Average.	Species.	Average.
Arctic	30	9·33	15	8·80	20	8·75
Northern	37	9·06	27	9·59	48	7·92
Temperate	238	7·90	91	7·46	296	6·92
Southern	75	5·40	46	4·11	167	4·29
Mean of 4 zones.	..	7·92	..	7·49	..	6·97

Again, it has been supposed that some plants are not only fertilized by means of insects, but may require for the purpose to be visited by particular species of insects. Such plants would thus be as dependent for their propagation on the co-existence of these particular insects as some parasitic plants are for their nourishment on the existence of particular victim-plants; and their power of extending would be limited accordingly by the range of the insects, irrespective altogether of their younger age as species.

Amongst aquatic plants a majority (32 out of 47) have inconspicuous flowers; but this can hardly be deemed a cross influence, for the wide range of fresh-water productions has been attributed partly to their having attained a greater age

as species; and the preponderance amongst them of inconspicuously-flowered species would be merely an evidence of this.

Unisexual flowers.—So many monœcious and diœcious plants have inconspicuously-coloured flowers, that the comparison between them and plants having at any rate some flowers perfect, resembles in great measure the last. It is as follows:—

Species.		Average.
152	with only unisexual flowers ...	7·63
1204	other Phanerogams	6·73

VI.—Dispersion according to the nature of the Fruit.

Fleshy fruits.—It has been considered that plants bearing succulent fruits have a greater chance of dispersion by means of birds; for, although grain when eaten by birds is killed by the process of digestion, seeds swallowed in a berry or other succulent fruit not unfrequently pass through uninjured, and retain their powers of germination. Professor De Candolle cites as an instance a practice of feeding turkeys upon hawthorn berries, for the purpose of subsequently sowing their seeds, which are found to grow better when thus treated than when sown in their natural condition. Amongst our British species, however, the average of fleshy-fruited plants is very little above that of dry-fruited. They compare as follows:—

Species.		Average.
71	With succulent fruit.....	6·92
1019	„ dry fruit	6·86

If we exclude from among succulent fruit those containing large seeds, not likely to be swallowed by birds, their average is somewhat raised.

Dehiscence.—In dry fruits the character which appears most likely to affect dispersion is their dehiscence or indehiscence. In cases where the seed vessel bursts, the naked seeds seem to be more exposed to vicissitudes; when enclosed in indehiscent carpels they are more likely to float, and, having the advantage of an additional protection, would presumably withstand for a longer period the action of sea-water. Indeed, Mr. Darwin's experiments on this point showed that seeds preserve their vitality in sea-water longer when enclosed in seed vessels than when naked. Our lists give the following results:—

Species.		Average.
584	With indehiscent fruit	6·93
434	„ dehiscent fruit	6·76

showing less difference than might be expected. This may arise from the fact that dehiscent fruits have generally more *numerous* seeds, an advantage that may compensate in great measure for the disadvantage of the seeds being exposed naked.

Special adaptation for dispersion.—The fruits and seeds of certain plants are to all appearance specially adapted for dispersion, being furnished with appendages which enable them to float in the air, and thus be easily wafted about by the wind; or to cling to the coats of animals: and in either case the chance is increased of their being conveyed to a distance. These appendages consist (1) of a coma or pencil of hairs attached to the *seeds;* (2) of a feathery pappus or awn, or (3) of hooked bristles or tubercles, bent or spiral awns, or some other grappling organ, borne by the *fruit* itself. Our native species thus furnished compare as follows:—

Species.		Average.
32	With seeds having a coma	7·28
94	„ fruits furnished with pappus, &c.....	6·39
34	„ „ „ grappling organs..	6·74
930	Not specially adapted	6·90

These results agree with those obtained by Professor De Candolle, whose calculations also show that whereas a coma attached to the *seed* is accompanied by a wide range, feathery appendages borne by the fruit are not. As regards plants furnished with the latter, several circumstances might be suggested as possibly exerting a counteracting influence—such as that they contain no aquatic species, but, on the contrary, an undue proportion have an inferior ovary, and nearly all bear coloured flowers and exalbuminous seeds; but on comparing Compositæ by themselves, in which all the conditions referred to are similar, we find—

Species.		Average.
81	Furnished with feathery pappus	5·98
2	With grappling organs	9·50
14	Without pappus	6·36

VII.—Dispersion according to character of the Seed.

Size and number.—Professor De Candolle has shown that Palmaceæ, Sapotaceæ, and some other smaller orders, nearly all tropical, and mostly arborescent in habit, producing fleshy fruits with *large* seeds, have a more limited range than certain other orders, which have ordinarily *small* and *numerous* seeds, and many of which grow in the temperate zone; the average of the latter being the same as that of Phanerogams generally. From this, and from the fact that Cryptograms, whose spores are excessively minute and numerous, have an extended average range, it has been generally accepted that small and numerous seeds favour a wide range. So far as regards *size* this is not apparent amongst our native plants, perhaps from the variation in the size of their seeds not being sufficiently great. Orchidaceæ and Orobanchaceæ, orders whose seeds are very small, have only a low degree of dispersion; and our native species belonging to the representative

orders, selected by Professor De Candolle as having small seeds, give an average almost identical with that of other Phanerogams. Thus:—

Species.		Average.
314	Belonging to the small-seeded orders ...	6·81
776	Other Phanerogams	6·88

I have made several attempts to institute a more exact comparison on this point, but the change in the size of the seeds is so gradual that I have found myself quite unable to draw the line between large and small-seeded plants.

As regards *number*, however, it is not difficult to separate species having solitary seeds from those with more than one seed in each cell, and the result is rather adverse to the generally-received belief.

Species.		Average.
623	With seeds solitary in each cell	6·93
464	,, two or more seeds in each	6·74

It is possible that the production of numerous seeds is, indeed, even amongst British plants, favourable to dispersion; but that this advantage is neutralized by the fact that when a plant produces numerous seeds its fruit is nearly always dehiscent, while solitary-seeded species have as generally indehiscent fruit; and the additional protection which this affords to their seeds may fully compensate for their paucity in number.

Testa.—Differences in the seed deserve our special attention, for it is in this shape that a plant is most likely to be carried from one part of the world to another; and if any peculiarity of the seed enable it better to withstand the various vicissitudes to which it must be exposed during transit, or to establish itself, and maintain a footing in the struggle for existence when it has reached a new country, the effect may be traceable in the specific area. We have already seen that a coma or down attached to the seed is accompanied by a high

degree of dispersion ; and the nature of the testa, or outer coat of the seed, may next be suggested as likely to exert an influence. It might be anticipated that a thick, hard, leathery or crustaceous testa would resist for a long time the action of sea-water, and by enabling the seed it encloses to retain its vitality for a lengthened period when carried by oceanic currents, favour its dispersion to a distance.* Such, however, hardly appears to be the case. In Mr. Darwin's experiments on the action of sea-water, seeds endued with a thick testa, *e. g.*, of Leguminosæ and Hibiscus, were amongst the earliest to lose their powers of germination ; and the following comparison shows that our plants whose seeds have such a testa reach a lower degree of dispersion than plants whose seeds have a membranous testa on the one hand, or a soft cellulose or mucilaginous testa on the other. Omitting species in which the nature of the testa is doubtful, we have—

Species.		Average.
665	With testa thin or membranous	7·03
47	„ „ soft cellulose, &c.	7·64
192	„ „ thick, leathery, or crustaceous	6·05

It may be remarked that seeds with a membranous testa are most frequently enclosed in an indehiscent fruit, to the pericarp of which the seed is, indeed, in many cases adherent. The apparent deficiency of the testa might be thus more than compensated for ; but I was surprised to find that the specific area does not appear to be affected by this. Some orders, as, for example, Primulaceæ and Juncaceæ, have seeds with a thin testa, but contained in a dehiscent capsule : of these our native species number 124, and their average degree of dispersion is 7·04.

Albumen.—In the determination of natural orders, a

* Dr. Hooker, in his paper on the flora of the Galapagos Islands, expresses an opinion that the "indurated seed-coats of some" (plants) "probably aid "them in resisting for some time the effects of salt-water."

character of the seed to which great importance is usually attached is the presence or absence of albumen. If the function of albumen be to supply nourishment to the embryo during germination, its possession may enable a seed to retain its vitality longer, and maintain its existence more sturdily when it reaches a new country, than a seed in which no such store of nourishment is provided, and thus favour the dispersion of the species. Whether this be the case or not, we at any rate find that our plants with exalbuminous seeds have a lower degree of dispersion than those with albuminous; and that among the latter, differences in the nature of the albumen are accompanied by variations in the average range—plants in which the albumen is farinaceous exceeding in this respect those in which it is fleshy, dense, or horny:—

Species.				Average.
303	With albumen	floury or mealy	.....	7·37
347	,,	,, fleshy or horny	.....	6·80
439	,,	,, absent or very scanty	...	6·55

This is the more remarkable, as the majority of our aquatics have seeds destitute of albumen. Omitting aquatics, the figures stand:—

Species.				Average.
299	With albumen	mealy or floury	.....	7·35
333	,,	,, fleshy or horny	.....	6·66
411	,,	,, absent or very scanty	...	6·41

This accords with the experiments of Mr. Darwin on the resistance of seeds to sea-water, in so far as the two orders which he found were soonest killed, Leguminosæ and Malvaceæ have no albumen; while of the five orders which retained their vitality longest, Chenopodiaceæ, Polygonaceæ, and Gramineœ have a floury, Solanaceæ a fleshy, and Umbelliferæ a dense albumen. In Compositœ and Cruciferœ, however, orders destitute of albumen, the majority of species experimented on survived fairly well; and Dr. Hooker's observations

on the Galapagos flora led him to believe that an exalbuminous embyro the most readily survives a sea transit; while of the albuminous-seeded plants presumed to be there introduced, "the majority have that substance dense and carnose, some "farinaceous, but two or three only." Other authors, so far as I am aware, have not discussed this point. Professor De Candolle has not alluded to it; but his figures respecting the dispersion of natural orders (*Geographie Botanique*, vol. i, pp. 515 to 517) give, when analysed according to the albumen contained in the seeds, the following results, confirmatory of those above obtained from British plants:—

Albumen.	Orders.	Species.	Percentage found in more than 2 districts.
Farinaceous	23	9·254	7·9
Fleshy or dense	96	20·790	4·2
Absent or very scanty	62	29·001	3·6

VIII.—Dispersion according to classification.

Natural Orders.—In connection with the structure of the flower have been given above the average degrees of dispersion of the *Classes* into which Vascular plants are divided, and of their divisions. The following are the averages of the *Orders* most largely represented in our flora, namely, those having fifteen or more native species:—

	Species.	Avge.		Species.	Avge.
Ranunculaceæ	25	7·88	Boraginaceæ	18	5·89
Cruciferæ	39	7·59	Primulaceæ	16	6·88
Caryophyllaceœ	48	7·35	Chenopodiaceæ	18	6·33
Leguminosæ	55	5·36	Polygonaceæ	25	7·40
Rosaceæ	42	7·44	Amentiferæ	30	7·03
Saxifragaceæ	17	7 65	Orchidaceæ	36	5·97
Umbelliferæ	49	5·41	Liliaceæ	17	5·47
Rubiaceæ	15	6·27	Potomaceæ	18	9·06
Compositæ	97	6·10	Juncaceæ	25	8·56
Ericaceæ	23	7·22	Cyperaceæ	92	8·07
Scrophulariaceæ	36	6·89	Gramineæ	94	7·16
Labiatæ	30	6.53	Filices	43	9·44

These larger orders, taken together, give an average of 7·04, against 6·84 that of smaller orders; or, omitting Cryptogams, 6·91 against 6·67. There are, however, some orders, such as Solanaceæ, which, although they are extensive abroad, have only a few British species. When viewed according to their total number of known species, and divided into four classes, viz., 1st, largest, those that contain 2000 species or more; 2nd, large, those with 1000 to 2000; 3rd, moderate, those with 500 to 1000; and 4th, small, with less than 500 orders, give the following comparison, excluding Cryptogams:—

Species.		Average.
426	Of the 8 largest orders.....	6·65
204	„ 7 large „	6·76
187	„ 11 moderate „	7·03
273	„ small „	7·13

Specific area would thus seem to be in inverse ratio to the size of the orders. In the case of *Large Genera*, however, a different result is obtained. Mr. Darwin, in support of his views of the nature of a "species," adduces the fact that large genera comprise a greater proportion of *dominant species* than small genera, the predominance of the species being shown by—1st, extensive geographical range; 2nd, general diffusion over the area which they occupy; 3rd, commonness, or being represented by an abundance of individuals; and 4th, variability, or a tendency to produce varieties differing from the typical form.

Our subsequent comparisons are in this connection, and show that a range more extensive than the average accompanies each of the other characteristics of predominance enumerated above.

Having regard to only our British species, and considering those to be large genera that have eight or more native representatives, we find that

Species.			Average.
362	belonging to 26 large genera	.....	7·38
789	„ smaller „	.....	6·82

But there are some genera, such as Astragalus and Lobelia, that have a large number of foreign species, although but poorly represented in Britain. Including foreign species, the large genera may be divided into two grades, the largest containing 200 or more species, and those coming next in size containing 100 to 200 species—when we have the following :—

Species.			Average.
148	belonging to 20 largest genera	.....	7·42
269	„ 44 large genera	.....	7·04
734	„ smaller genera	.....	6·90

General diffusion.—On this point I have followed Mr. Watson's census of counties in the "Compendium." Classed according to his figures therein given—

Species.			Average.
150	found in 90 or more counties	.....	8·01
336	„ 60 to 89 counties	....	7·24
665	„ fewer than 60 counties	..	6·65

The larger average thus attained by the plants most generally diffused in Britain is the more remarkable, inasmuch as Arctic plants are excluded from amongst them, being in this country necessarily confined to districts of high elevation. Omitting Arctic plants, the average of species found in less than sixty counties is reduced to 6·37.

Commonness.—Taking as a guide our best-known floras, I have averaged the plants that are therein described as "common," "abundant," or "plentiful." Commonness usually accompanies general diffusion, but not always, for some plants are thinly scattered over a great part of the country, yet cannot be regarded as common. Again, certain plants are quite common in some districts, yet do not extend to others. For instance, a plant may be common in the south

of England, but hardly found in Scotland ; another may be plentiful in the Highlands, but almost unknown elsewhere ; or plants may be common only in particular stations, as on sandy sea-shores or peat-mosses. Such may be termed "partially "common," and I have averaged these, also, separately :—

Species.		Average.
319	generally common.....	7·54
83	partially „	7·16
749	less plentiful or rare	6·75

Variability.—Regarding as variable all species of which more than one form is distinguished by Professor Syme in "English Botany;" and averaging separately those in which the variation of the forms is so great that they are ranked as "sub-species;" and those of which only "varieties" are recognised ; we get the following result :—

Species.		Average.
92	divided into sub-species	7·76
205	„ varieties.....	7·64
854	not variable	6·76

These figures are not materially changed if amongst the variable species are included those which present distinct varieties abroad, although only one form is found in Britain.

THE MYTHOLOGY OF AEROSTATION.

By John T. Towson, F.R.A.S.

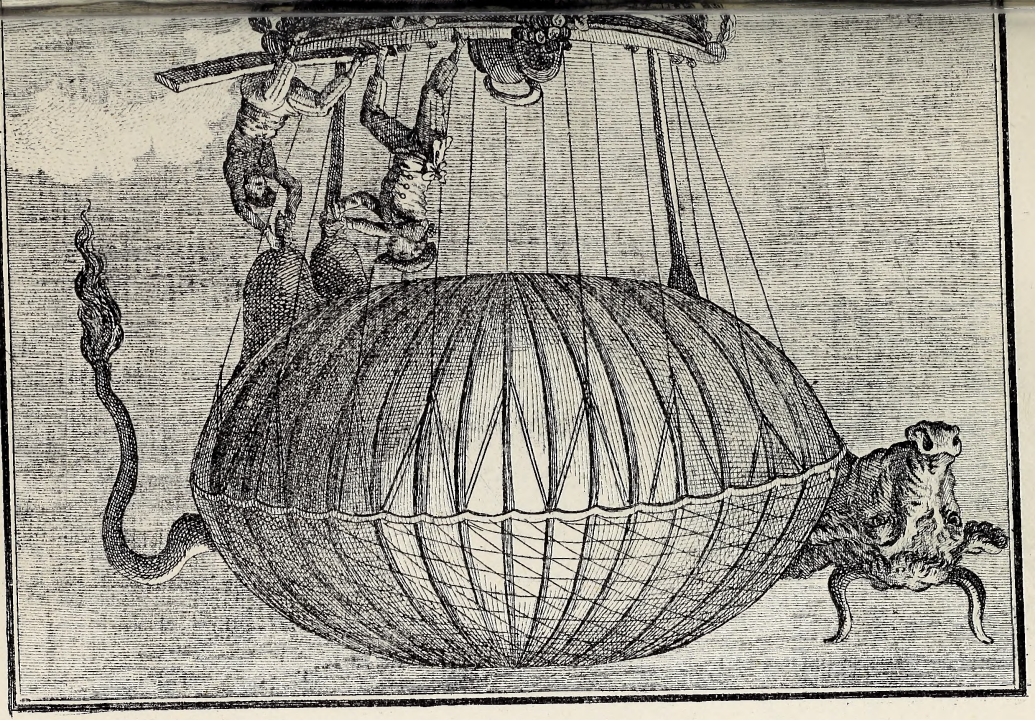
(Read November 27th, 1873.)

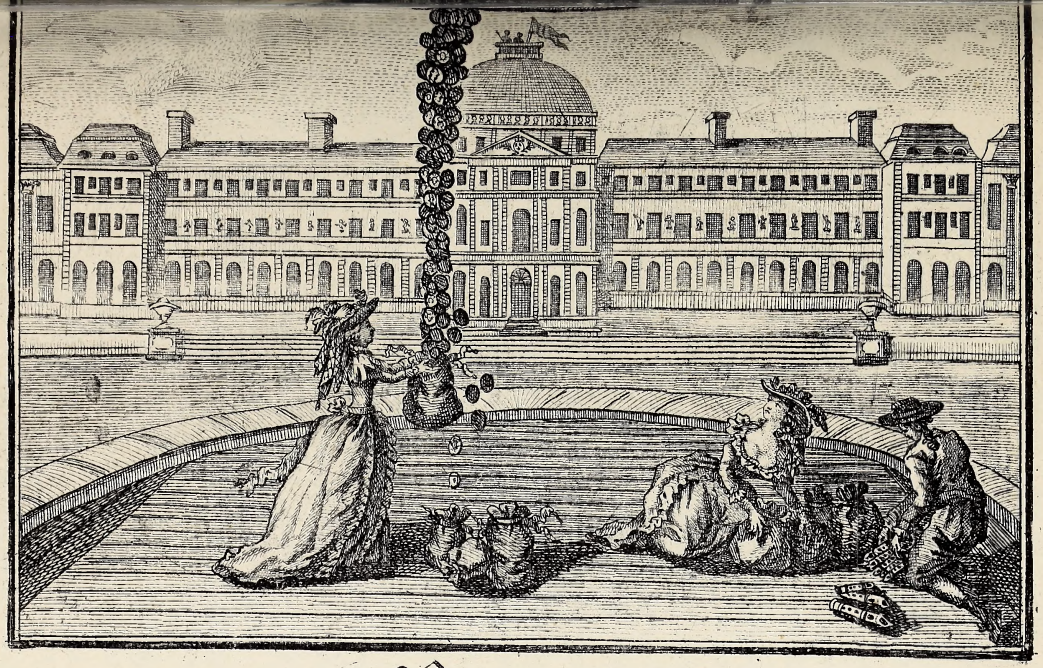
The history of aerostation may be said to date from 1783, when the Marquis d'Arlandes and M. Pilatre de Rozier ascended in the car of Montgolfier's balloon. All previous accounts of pretended feats of aerostation we regard only as mythical, and class them with the accounts of the journey of Abaris through the air on his sacred arrow, and of the flight of Dædalus from Crete on wings. Although the writings of Kircher, Porta, Schott, Lana, Ramus, and Bishop Wilkins are generally deserving of respect, yet not one of these writers can be relied on as a historian. In writing what they pretend to have been the history of aerostation, they all state that Regiomontanus constructed an eagle, which flew out from Nuremberg to meet the Emperor Charles V, and on meeting him, flew back again over his head to the town. We can form some idea of the reliance to be placed on their records of the aerostation of the past, from the consideration of the fact, that the Emperor and Regiomontanus were not contemporaries, the one having died about a quarter of a century before the other was born !

It may be asked in what manner is the history of aerostation connected with the history of Lancashire and Cheshire ? One of the first aeronauts was Matthew Vallet, of Javel, near Paris, who afterwards resided in Liverpool, and established bleaching works at Garston. One of his daughters was married to a son of Mr. Grace, of Speke Hall, with whom

M. Vallet afterwards resided; and there he died, when he was upwards of ninety years of age. From his grandson, a resident in Liverpool, I obtained the two plates which illustrate this paper; they were engraved in 1784. Also the two Sadlers, father and son, were connected with Liverpool, whence they made several ascents. The elder was the first British aeronaut; the latter met with his death in Lancashire in 1824, and was buried in Liverpool; and his son holds an office in connection with the Borough Engineer, and possesses the best records that now exist of the early history of aerostation.

It has, however, been frequently remarked that the results derived from balloon ascents are comparatively of little value; not sufficient to compensate for the lives sacrificed. The only practical purposes for which balloons have been employed with success, are as the means of communication with a besieged town. For this purpose, during the siege of Paris, they were, in conjunction with carrier pigeons, of great value. During the battle of Fleurus the French made a reconnaissance and prevented a surprise by means of a balloon. In 1804 MM. Gay Lussac and Biot ascended at Paris to the height of 13,000 feet; and being provided with the necessary apparatus, determined many phenomena on which our present knowledge of meteorology and of the mechanical nature of our atmosphere depend; and the former gentleman, during the same year, ascended to the height of 23,000 feet, and fully established Black's theory of latent heat, and the connection between the temperature of the atmosphere and the barometric pressure. It must be admitted that at these early periods it was an honourable risk, and continued to be so as long as a belief existed that anything could be gained to the cause of science; although it is now generally regarded as foolhardiness, undertaken to amuse a crowd, and as undeserving of encouragement. We must therefore assign a far greater honour to our late townsmen, Vallet, the Sadlers, and





L'ÂGE D'OR.

Livingston, than would be awarded for similar exploits in the present day.

When discoveries in science are first made, we should give praise to all who have devoted their time, their money, and even their lives to the development of such discoveries, whether of great ultimate value or otherwise. Those who would devote themselves to science for the benefit of mankind can only be directed by the opinions of men of science who are their contemporaries. Future ages must decide whether their exertions were useless efforts or discoveries of inestimable value. The discovery of galvanic electricity, in causing the deflection of the needle right or left, was little thought of at the time of its first discovery, yet it has brought about a revolution in commerce; it has nearly realized already the expression of Puck, in the *Midsummer-night's Dream*:—

> I'll put a girdle round about the earth in forty minutes.

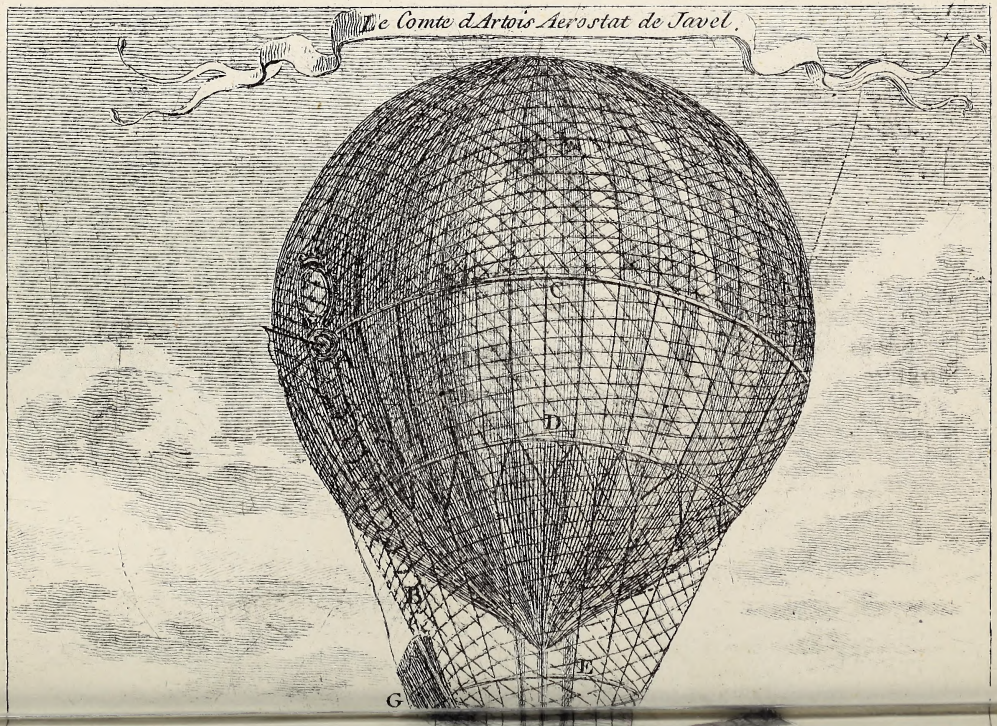
On the other hand, when Montgolfier first succeeded in producing an apparatus, by means of which human beings were lifted above the earth to float in the air, the expectations of all grades of society were kindled, and the highest anticipations were entertained, from the palace to the cottage, as to its value, and all honour was awarded to those who risked their lives in their efforts to develop this branch of practical science. Plate I illustrates the high esteem in which aerostation was regarded in 1784. The balloon is represented as a cow, and the aeronauts as milking from it a stream of Louis d'or, which is gathered up by others on the earth's surface. The title of the plate is "l'age d'or." From the second plate, we find that the balloon of Javel was constructed under the directions of the Count d'Artois, afterwards Charles X, who himself ascended with M. Vallet. The unfortunate Marie Antoinette, accompanied by the ladies of her court, went up with him, for short distances, on several occasions, the balloon being restrained by ropes.

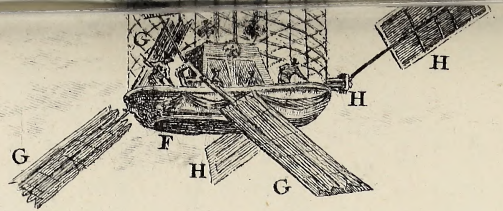
We find also that men of science and the French govern-

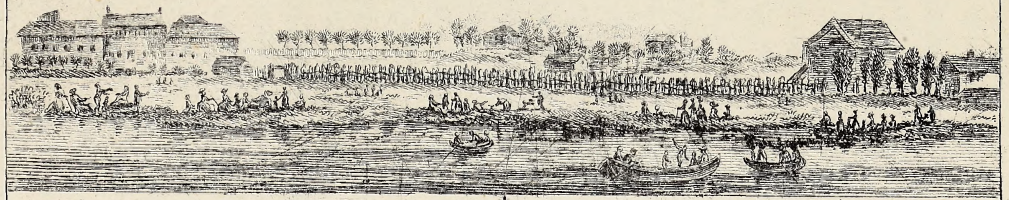
ment entertained a high appreciation of the prospective value of balloons. Montgolfier was admitted a member of the Academy of Science; he was created Chevalier of the Order of St. Michael; and was rewarded with a pension of two thousand livres. These honours and emoluments were undoubtedly conferred on him solely for his invention of the balloon. Judging from the following quotation from his explanation of his theory, he had little or no claim to be regarded as a man of science. He says, "fire was employed "as well to increase the layer of electric fluid upon the vapour "in the vessel, as to divide the vapour into smaller monecules "and dilate the gas in which they are suspended." He further observes, that "an organised body in a state of ignition "decomposes air, and furnishes chalky, mephitic, and inflam- "mable gases. The state of ignition facilitates the union of "the electric fluid with this body of vapour; the heat arising "from combustion is concentrated, so as by itself to dilate "the heaviest of the gases and make it specifically lighter "than common air: therefore the balloon rises."

The labouring and the poorer classes, as well as those who belonged to the higher ranks and to scientific institutions, were equally sanguine in their expectations. The Rev. James Lapslie, residing at the Manse of Campsie, states that on the 6th of December, 1785, he was walking through the parish, visiting the sick, when his attention was suddenly arrested by a confused humming noise. "I hastened to a rising ground, "when I heard a shout of 'here he comes,' and Mr. Chisholm "shouting, 'Lunardi, come down,' and I joined in the shout. "At two o'clock he descended at Eastern Mockroft, on the "banks of the Glassart, on the estate of Archibald Edmistone "of Dulreath, in the parish of Campsie, nine miles and a half "N.N.E. of Glasgow."

The second engraving will explain the apparatus for navigating a balloon, according to the ideas of Vallet. The body of the balloon is perhaps explained in an unnecessarily com-


Le Comte d'Artois Aerostat de Javel.
C
D
B
E
G





Cet Aerostat a été construit par M.M. Alban et Vallet pour constater la direction de ces Machines, d'après les essais annoncés dans les Journaux de X.bre 1783. Janvier et Fev.r 1784.

A *Soupape.*
B *Echelle de corde.*
C *Equateur.*
D *Tropique.*
E *Cercle de réunion*
F *Gondole.*
G *Ailes.*
H *Moulinet.*

Gravé par le Vachez M.d d Estampes aux Colonnade du Palais Royal.

plicated manner, as consisting of the equator (C) and the tropic (D). Wehave also the valve (A) for letting out the gas, and the rope ladder (B) for the aeronaut to ascend by in order to open or close the valve, when it is required that the gas should escape—apparently a most dangerous task to undertake. This was, however, subsequently effected so as to entail little or no risk, the valve being placed at the apex of the balloon and opened by means of a cord passing down through the centre of the balloon into the car, and closed by a spring. This plate also suggests two methods for propulsion—the wings (C, ailes), and the screw propeller (H, moulinet), neither of which has ever been of the smallest value in connexion with ballooning. Down to the present day, means of propelling a balloon have been repeatedly tried; but entire ignorance of the laws of dynamics has been displayed by all who have attempted to direct the course of a balloon through the air. In the first place, the direct action of the wind on a balloon can never be controlled. Our sailing ships are navigated by means of the two elements by which they are affected. The impelling power is derived from the wind, while the action of the water both on the rudder and the hull directs her course. But no such combination of forces can act on a balloon, which is both sustained and impelled by the air. The methods proposed, with the greatest *apparent* prospect of success, have been founded either on the analogy of the screw propeller of a steamer, or on that of the wings of a bird. In plate II both are represented. But in this, as in all other cases, they were failures. To propel any body by any such means the force should either be applied at or towards the metacentre, or the motive power should be divided, and a part applied on each side of this centre. The metacentre of the balloon, represented by our engraving, is situated on the vertical line passing through the centre of gravity of the car, at the point intersected by a horizontal plane, somewhere between D (tropique) and C (equateur.) But if the power were divided, and a part

applied at the car, another but a smaller force should be made to act horizontally at the highest part of the balloon. Such arrangements appear to be involved in difficulties so great as to render them impracticable. In every attempt hitherto made to propel a balloon the whole force is applied at the car. The effect of a force thus employed, if considerable, would be to produce a rotatory motion of the balloon, precisely on the same principle as that by which the boat revolves in a circle when the oars are employed on only one side of the boat, or, in other words, on one side of the metacentre.

In the year 1865, the Aeronautical Society of Great Britain was established. Its object was to determine the means for accomplishing aerial navigation. After the failure of the numerous attempts during nearly a century, I should not have referred to this society had it not been for the high scientific reputation acquired and maintained by its members and correspondents. Amongst these are to be found the Dukes of Argyll and Sutherland, Earl of Dufferin, Lord R. Grosvenor, James Glaisher, Esq., F.R.S., Sir Charles T. Bright, Richard A. Proctor, Esq., F.R.A.S., and many other gentlemen of high scientific reputation.

The society has conducted a great number of experiments for the purpose of determining whether it is possible to propel a balloon in any other direction than that in which the wind is blowing, but in no case with any amount of success. The last experiment of this kind was made in September last, by Mr. Bowdler, who accompanied Mr. Coxwell in the Nassau balloon. It appears, however, that most of the members of the Aeronautical Society are convinced that, if aerial flights are ever made, with the direction of the route under the control of the aeronaut, it must be effected by some other means than by balloons. Thus this Society has gone back in their researches to those of theorists who preceded Montgolfier. We will then assign our reasons for believing that these gentlemen are still wasting their time in a futile pursuit.

A bird or other winged animal is provided with muscular power varying from 100 to 300 times the comparative value of that of a human being. Besides which, the muscular power of a bird is concentrated principally so as to exert the greatest force in the downward action of the wings. The pectoral muscles of a bird are three in number. Of these, the first or great pectoral, in some birds, weighs more, and exerts more power, than all the other muscles put together; and this also is aided by the third or small pectoral, in depressing the wing. The wing is elevated by the middle pectoral alone; consequently one of the laziest flyers, the heron, although he makes only 150 strokes of his wing in a minute, yet the downward action is so much more rapid than the upward, as to require an amount of power far beyond that which the Creator has bestowed on any animal designed to move on the surface of the earth, and not to fly through the atmosphere by which our earth is surrounded.

Next comes the question, can any source of power be sufficiently strong to enable a machine to be floated above the surface of the earth? It is certainly possible to do this for a few seconds, but not continuously for any practicable amount of time. We are informed by Messrs. Moy and Shill, of Faringdon Street, London, that they have patented an apparatus by which they hope to accomplish a flight by means of an engine weighing only 10lbs, and of one horse power. They say nothing about the weight of the fuel required per minute. It is true that a 10lb rocket will for a few seconds exert a force equal to one horse power; but how can this be applied to aerostation? This power is soon exhausted, and the apparatus falls to the ground.

Having come to the conclusion that in exceptional cases only will balloons be of any value, we must express our regret that, for purposes connected with science, so little has hitherto been recorded. With regard to the different currents

in our atmosphere, various opinions have prevailed, especially amongst our American friends. Maury, a great authority on meteorology, teaches that, in the variables, the general direction of the upper currents is from between north and east in the northern hemisphere; and yet a balloon of extraordinary dimensions was constructed a few months since with the intention of crossing the Atlantic, on the hypothesis that these were from the west. In order to determine this matter, Mr. Coxwell and Mr. Philip Ashton—of whom the former had made nearly 700 ascents and the latter more than 30—deemed it necessary to make another ascent. This is especially extraordinary when we remember that Mr. Coxwell, accompanied by Mr. Glaisher, in July, 1862, reached a higher altitude than was ever attained by any other human being. They reached the height of seven miles, which was 14,000 feet higher than Gay Lussac's celebrated ascent. Yet with all this extraordinary amount of experience they considered it necessary to ascend again, before venturing to declare the American aeronauts in error. By this late ascent of Coxwell, and that of the American aeronauts, it is clearly proved that the directions of the upper currents in these latitudes vary as much as they do near the earth's surface. Mr. Coxwell was carried south, and when at his greatest height, he observed "light cloudy streamers" far above him drifting to the south of the balloon. The American took the contrary course. We believe that all that can be done by means of balloons has already been accomplished, and that aerostation can only now be regarded as a science of the past.

The newspapers of the first week in July stated that M. De Groof's flying-machine had been tried with success in London; he has since met with a violent death, but the details respecting its cause are very conflicting.

ARCHÆOLOGY IN THE MERSEY DISTRICT, 1873, AND LIVERPOOL NOTABILIA.

By Henry Ecroyd Smith.

(Read March 5th, 1874.)

Early Norman Font at Grappenhall.

The Parish Church at Grappenhall,* with but little exception, possesses no early date, having been rebuilt in 1539. It has, however, portions of two earlier chapels, that on the S.E. retaining its window, piscina, and a corbel for the lamp stand. In its early days, it boasted the possession of more windows in stained glass than any other church in the county of Chester. Dedicated, in common with the cathedral of Ripon and many other churches of our northern counties, to Wilfrid of York (A.D. 709), Saint, Bishop, and Confessor, the earlier erection was not supposed to date beyond the 13th century. Interiorly, its present most striking features are its octagonal columns, supporting pointed arches, which, especially in the shades of evening, produce a sombre and picturesque effect. The figure of a female saint in a 13th century dress of ermine, is a relic of the earlier building, and appears in the east window of the north aisle; also a wooden escutcheon, charged with the arms of Middlehurst, and dated 1295; but undoubtedly a *Font*, recently discovered, carries

* Spelt Gropenhall and Gropenhale in deeds 1189-1410, and contracted into Grampnal by Strype. It lies three miles S.E. from Warrington.

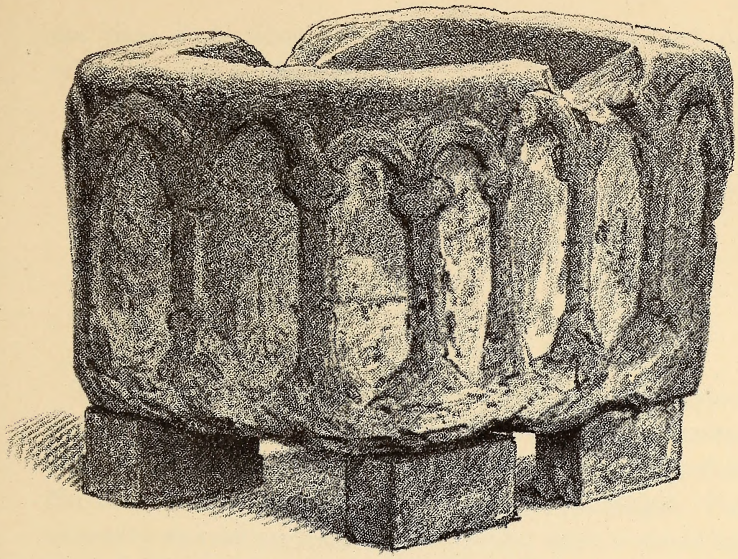
the probable foundation to a much older period, although no mention of a church existing here occurs in Domesday. We have gleaned these prefatory particulars from the "Notes "and Queries" column of the *Warrington Guardian*, and now append the account as communicated to this journal by our worthy Vice-President, Wm. Beamont, Esq.

"In March of the present year (1873), in the course of "restoring the church, there was found lying near the base of "the second pillar from the west end, and three or more feet "below the floor, which had been raised above the original "level either when the church was rebuilt in 1539 or since, "the ancient Font of an older church,—a venerable relic, "which goes back to Norman, if not to times still earlier. "When first discovered, it was in some danger of being "destroyed by the workmen; but it was fortunately seen by "the Rector, the Rev. Thomas Greenall, at the right moment, "and he interposed and saved it."

The material is the red sandstone of the country; and, carved in low relief, there runs round it an arcade of semi-circular arches, without other ornament. The capitals and bases of the columns are large and clumsy, and all the arches,—even those on the same side,—are not equal, either in height or width; and it would seem as if the country mason who had made the font, had worked impromptu, and without a plan. It must have originally stood upon a broad square base; but no traces of this were found, and it had probably been long destroyed.

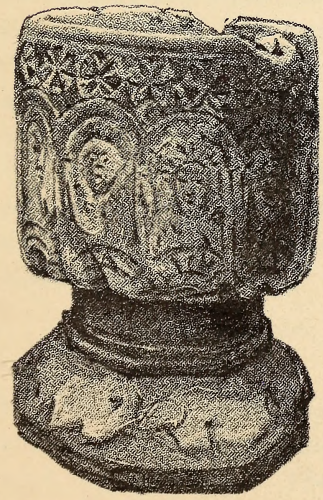
Most of the ancient fonts had their basins formed round, square, or oval. The distinguishing feature of this is that it is oblong, but like all old fonts, large enough for immersion. Two hollows of similar size, exactly opposite each other, occur in the two sides of the rim, as if the font originally had a cover with a lock to it, which was common in old times; and if so, one of these hollows may have been

1.

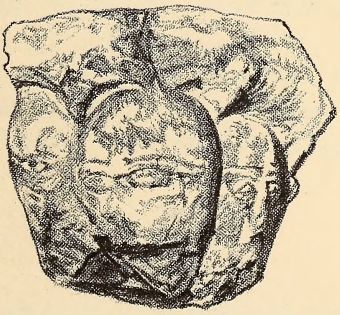


GRAPPENHALL FONT.

2.



3.



HUYTON FONT.

J.E. WORRALL, DEL.

the place of the pivot on which the cover turned, and the other the place of the lock.

The dimensions of the font are:—

	ft.	in.
From end to end, outside	2	7½
From side to side „	2	0
Height „	1	6
Depth of basin	0	10
From end to end, inside	1	10½
From side to side „	1	3

Early Christian Sculptures at Huyton.

During the latter part of the year, and under the auspices of the vicar, the Rev. Oswald Penrhyn, a considerable amount of alteration and repair was effected in the Parish Church of Huyton, which is dedicated to St. Michael the Archangel. The necessary renovations included a reflooring upon a somewhat lower level; and upon removing the old flagged pavement beneath the tower at the east end, the workmen discovered a drum-shaped block of stone, assumed to be a section from an old column, until examination proved its real character,—the bowl or basin of a font, clearly of much older character than any portions of the present structure, the earliest of which seem to belong to the 15th century, the church having been rebuilt about 1647.

This font-bowl, which has unquestionably possessed a pedestal, and probably a massive one, has been carved from a single block of the native (Keuper) red sandstone, its dimensions being—

Exterior diameter .... 26 inches.
Exterior height .... 22 „

but when perfect, *i.e.*, retaining its *cover*, these measurements would more nearly assimilate. This apex must have been of wood, or possibly lead. The rim has hollows on each side, where the hinge (or pivot) and the opposite hasp (or lock)

were fixed, and one of these recesses contains its soldering and a trace of oxidised iron. The bowl was found to possess its *lining* of lead, bearing traces of long-continued use, but still whole and only rather jagged on the rim. This metal receptacle has a depth of 12 and a diameter of 20 inches.

The font is cylindrical in form, but the outer surface is irregular in outline, through bulging somewhat in places. The sculptured design is, unfortunately, in so low a relief, that the photograph from which the annexed engraving is taken, scarcely does justice to it. Immediately below the bevilled rim we find a plain fluting followed by a border of seize-foils, if we may use this term for six-petalled flowers, very neatly tooled. The body or central portion is composed of an arcade of semicircular arches, their capitals and bases being of the plainest possible style, and closely resembling those forming the sole ornament of the Grappenhall font, above described, only they are on a smaller scale, and more regularly fashioned. Each niche contains the head of a Saint, but no trace of individuality is given to any, and the character of the series is only expressed by the radiating arch or corona above each head; and although some of these coronas differ slightly from others, the discrepancy lies only in the number of rays, which varies from seven to eleven. Below, and forming a border or base ornament, is a repetition of the same radiated arch work.

In regard to date, we hold both the Grappenhall and the Huyton font to be of as early a character as any we remember to have seen or heard of in this country, and incline to attribute them to the 8th or 9th century, when Roman sculpture still remained strewed over the land; for the style of ornament seems to decide the point, and the mode of execution confirms the appropriation. The six-petalled flowers are only so far Saxon or Norman, as being copied from Roman-British altars and monumental stones; in later

mediæval times only recognised Christian emblems would have been used for so sacred a purpose as this, and in place of these flowers, cinquefoils or trefoils would have been substituted. The arcades are likewise derived from Roman archwork of the severest style, whilst the saints, unlike those of later sculpture, are devoid of any symbols. The most expressive term for this copied and debased style is, perhaps, "degraded Roman."

It is remarkable that two such early fonts should have been disentombed in their respective churches within a few months of each other, in villages not twenty miles apart, and under circumstances so similar; but a still more striking coincidence was the discovery of that at Huyton on Michaelmas Day, the calendar anniversary of the church's patron saint. Both were found buried under the floor; both are made from local stone, and possess the arcade ornament. In additional sculptured decoration, the Huyton example has the advantage, whilst retaining its leaden lining. The two differ in shape, but below have a similarly-tooled circular orifice for egress of the water.

In confirmation of an Anglo-Saxon foundation at Huyton, the vicar has obtained from the grouted filling of a wall the *capital of a small column* of considerable interest. It is carved with four male heads, but two of these are probably the later and ruder work of some village mason. The outer pair are, on the contrary, well carved; each wears a helmet, having a small vent in the centre of the forehead and long lappets over the ears, such as we find upon Saxon pictures and effigies, and which no doubt originated in the plain helmet worn by the common soldier of the Roman legions.

During the operations at Huyton Church, two of the thin pieces in brass, now commonly known as Nuremburg counters, were found. Mr. J. Harris Gibson has examined these

examples, and describes them in a communication to the Liverpool Numismatic Society, prefaced by some general remarks on this little-understood class of inscribed metallic objects, which are often found on the sites of mediæval religious houses.

"*Tokens, Jettons, or Counters.*—The last of these terms "evidently illustrates their use for the keeping of accounts, "or reckoning without the knowledge of figures. Through "the appellations they have borne in foreign countries, they "would seem to be traceable to the calculus of the Romans. "Among the continental names we find *Jeton*, in France; "*Legpenning* or *Telpenning*, in Belgium and Holland; "*Richenpenning*, in Germany; *Racknepenning*, in Sweden; "*Contadores* or *Gitones*, in Spain; and *Gettone* in Italy. "From this last designation no doubt comes our 'jettons,' "held to be synonymous with 'counters.' They are traceable "to the 13th century, the earliest forms, those of Bruges "and Tournay, displaying no legends, but only small orna- "ments, as flowers, crosses, crowns, shields, and other "symbols. In the following centuries these pieces appear "with *legends* of a diversified character, but all more or less "abbreviated, and thus at this distance of time often difficult "of interpretation; but they appear to have been chiefly "religious mottoes, varied by proverbs and the name of the "city where, and that of the individual by whom, they were "struck."

Fosbrooke quotes the following religious uses of counters. Of lead or parchment, with a chalice on one side, and inscribed "Pour les Messes," being given as certificates of having attended the service, to canons, capellaines, &c.;* Sacramental counters, for admission to the sacrament in the reformed churches.† These counters are yet used in the same connection by the Presbyterian church in Scotland;

* Du Cange. † Merallus.

where they are known as "tokens." Others were given at fairs, in proof of money paid;* but their material is not stated.

The specimens of the latter kind, found at Huyton Church, may be thus described:—

1. *Obverse*—Lozenge, containing a double lis, with a single lis on either side; between the sides of the lozenge and the inner circle four annulets and four pellets at alternate distances. Legend "VBENO: VBEN: VBENI: VBEO," divided into four parts, and separated by pellets, the letters being mediæval in character. *Reverse*—A ship at sea, with a flag at bow and stern. Legend, the same as obverse, but indistinct: no pellets, M.M. a crown.
2. *Obverse*—A triangle upon a double trefoil: orb and cross in centre within a beaded circle. Legend, DNACKVND BECTOCNV, the letters being in mediæval and Roman characters. M.M. a lis. *Reverse*, a small rose in the centre, surrounded by three crowns and three lis alternately. Legend, ECKVND KVND BVCDKVBV in mixed characters. M.M. a small three-leaved ornament. Both legends are wholly unintelligible.

Wallasey.

We have again a few miscellaneous objects to chronicle, as occurring in this ancient village.

A *Silver Penny* of Charles I, of the ordinary type; it is much worn, apparently more through perforation, and subsequent use as a personal ornament, than from circulation.

A *Copper Halfpenny* of Charles II, of the type struck for currency in Ireland, and not one frequently noticed here. *Reverse*, Irish harp crowned between the date

* Merallus.

figures 1680. This was the first year of the issue of Irish halfpence under a royal patent, granted to Sir Thomas Armstrong, Kt., and Colonel George Legg, and it is described by the Irish numismatic chronicler, James Simon, as certainly the best and handsomest copper money yet struck in or for Ireland.*

A *Shoe Buckle*, in bronze, three inches long by two inches broad, ornamented with cinquefoils and quatrefoils placed alternately; fastenings wanting. This kind of buckle was in use about the end of the 17th and beginning of the following century. It was found shortly after the destruction of the old Church of St. Hillary by fire, very near its walls, and about three feet beneath the surface.

Several bowls of *old tobacco pipes* have been turned up in the market gardens. Five of these are of 17th century manufacture, but only one of them displays a potter's mark—a tree; another is of more rotund or bulbous form than characterises this locality: it is, however, a form common near Warrington.

Halsall.

In April of this year, and during excavations contiguous to the vestry of the Parish Church, the workmen discovered an interment in a mass of concrete. The skeleton proved to be that of a full-grown male, and, lying athwart it, were the remains of a child, in a position very unusual. The imbedding of human remains in lime cement was early practised, and is of uncertain origin. Examples are recorded during many Anglo-Saxon and mediæval centuries. Among the relics we described as found during the late restoration of St. Bridget's Church at West Kirby, were a small stone coffin, containing the body of a child, imbedded in concrete.

* *Essay on Irish Coins*, p. 54; engraved plate, VII, 144.

Bidston.

A *Guinea-Weight* of William III, in good condition, has turned up in the soil upon the lower or southern end of Bidston Hill. *Obverse*, laureated bust of the king; Legend, GVLIELMUS 3 DEI GRATIA. *Reverse*, a crown with I
two sceptres in saltier; beneath, GVINEA. It was probably W
fabricated 1697-8, as we find that on the 21st of February of this year, a Proclamation was issued for settling the *Standard Weights* for gold and silver currency in Ireland, "according to the standard lately made in his majestys mint "in the Tower of London." The locality of its outturn was, we believe, up to the beginning of the present century, an unenclosed moorland waste, abutting upon Oxton Heath.

It may be noticed that many guineas of the same century have been picked up at low water upon the Leasowe beach, and a few stray ones on Hilbre island. They have been some time in circulation, judging from their condition, and are assumed to have been lost in or from a treasure vessel of William III, and intended for the payment of his troops when in Ireland. A story is current in the neighbourhood, that one morning, now forty years ago,* Sir Edward Cust, the owner of Leasowe Castle, upon descending to the breakfast parlour, found no visible preparation for the matutinal meal. He rang the bell, and repeated the operation to no purpose. At length a young scullery-maid appeared, exclaiming—"If yer please, Sir Edward, they're all down on "the shore, picking up goulden guineas!" Certainly the ebb, at this time, was a very low and consequently favourable one, and a number of these pieces were really obtained upon the occasion. Specimens may still be seen at the castle, secured inside a box of black oak procured from

* 23rd Sept., 1834. See *Transactions* I, 103, 104.—Ed.

one of the "Meols Stocks," or stumps of trees, which stud the shore to westward, forming part of the uppermost of the ancient forest beds, which here "crop out" through tidal encroachment of unnumbered centuries.

Produce of the Sea Beach of Cheshire.

Early British.

Triturating or polishing stone, in form of a boulder, of dark-coloured, fine-grained, and very hard lava, 5 inches long by 3 wide, and nearly equally thick. It has been used longitudinally, and chiefly on the narrower sides. Similar objects, differing somewhat in shape, but all selected from the hardest stones of the adjacent beach, were met with by the Hon. W. Owen Stanley when excavating the numerous Ancient British huts on Holyhead mountain a few years ago, associated with mullers (broader pounding stones) and hammer heads, likewise of stone.*

Objects in flint. An arrow point and a rudely-formed lance head have been found on the Meols beach. Again the writer has met with a number of edged but mostly fragmentary instruments on "The Eye"; they comprise 2 arrow points; 2 knotched articles, apparently for sawing; 1 dagger blade (fragment); 2 chisels; 1 "thumb flint;" 3 scrapers; and 15 miscellaneous objects.

Oval quartz pebble $\frac{3}{4}$in. long, in which a natural aperture towards one angle has been artificially smoothed for use as an amulet or a bead. Perforated stones were invariably held to possess sovereign powers in early times, and the superstition is still rampant among the more ignorant classes of our British peasantry in some localities.

Uncertain object in composite metal, 2in. by $1\frac{1}{2}$in., which but for its thickness might be taken for part of the blade of

* *Journal of the Royal Archæological Institute*, 1868-70.

a large sword. Its composition being evidently of a very unusual character, we submitted the fragment to Mr. Alex. Norman Tate, the well-known metallurgist, and his report confirms our suspicion of early and probably native British fabrication, as he finds it to contain about 60 per cent. of copper; not more than 1 per cent. of iron; both tin and bismuth, in rather large proportions; and also sulphur, arsenia, and some little silica. Mr. Tate obligingly supplements his analysis by the significant remark—"I can only "look upon it as the result of very imperfect metallurgy, and "decidedly different from anything I am acquainted with as the "result of modern metallurgical treatment." We are inclined to look upon the object as a relic of a chariot,—a fragment of a wheel spoke; it is certainly too thick and massive to have formed part of a sword, dagger, or spear-head. The ancient British war-chariots are well known by the general description of Cæsar and other Latin historians. We are told nothing of the quality of the metal used in their fabrication; but the native metallurgy, although learnt no doubt from those clever artists the Phœnicians, would still be in a very imperfect condition away from the Tyrian colonies on our southern coast.

Roman British.

Bronze. Bow or lyre-shaped *fibula* (brooch), 2 inches long: the upper face or breast has three parallel and linear hollows for the reception of coloured pastes, traces of which remain. This is the commonest type of the Roman brooch as found here and elsewhere.*

Two brass *pins*, imperfect, but originally 3—4 inches long, with curious heads.

Uncertain object, curved, pointed, and looped, 1¾in. long, resembling one of the modern varieties of hat guard bars.

* *Vide Ancient Meols*, Plate III, fig. 1, for approximate type.

Fishhook, 1¾in long, but rather imperfect at the splayed (if not also folded) end for attachment to the line. It is here classified, firstly from its metal, which, so far as can safely be examined, appears to be bronze rather than the mediæval latten, of which, however, a few examples have here been found, but badly formed; secondly from its admirably fashioned barb, opposite the point of which a diagonal groove appears, well calculated to facilitate the intention of this little instrument. Fishhooks in bronze are of very rare occurrence; and Dr. Hume tells us that in the fine collection of antiquities belonging to the Royal Irish Academy, only a single example is preserved: it is of a different type from ours, being curved or bowed in the shaft, whilst the Meols specimen is straight. The discovery of the latter occurred in an unusual manner. A quantity of black and very fusty matter was noticed by the writer in the face of the "brow," or sand bank abutting on the beach, and lying considerably higher even than the mixed and artificial soil, or stratum, from which the mediæval articles are washed. Upon examination it proved to be identical with the material of the forest beds below, and has in all human probability been removed in olden time, that it might be dried for fuel, as peat is now. It was during this identification that the fishhook appeared; and as the Roman relics hereabouts are found on the forest bed, after extraction by the tide from the superincumbent blue clay, its presence confirms the probability of Roman or Roman-British fabrication.*

Iron. *Lance head,* well formed, and 1½in. in length. 2 Iron bolts, of slender make, which must have been 5 and 7 inches long respectively, have circular heads ⅝in. diameter.

* Subsidence and occasional submergence, followed by re-elevation, of ancient land surfaces have by no means been confined to Europe. At various points on the coast near Quito, Mr. Jas. Wilson found finely-fashioned objects in gold and other metals, together with ancient pottery, beneath a marine deposit of 6 feet, having trees growing on the surface which were older than the Spanish Invasion. The Cheshire beach shows a long-continued subsidence.

Glass. *Two beads,* one of spherical the other of annular form, 5-16in. diameter; in a rich blue colour, both material and hue having been fortunately preserved by the clay just mentioned, and they are evidently identical with those of the finest vitreous vases of antiquity which have come down to us. We allude to those known as the "Portland," the "Naples," and the "Auldjo" vases, of which the fragments of the first and a few pieces of the second are in this country. Inestimable value attaches to these magnificent vessels, from their unapproached artistic character. The glass body of the vase in each of these examples was coated over with a white, but opaque, vitreous composition, or enamel, of great hardness, which has been tooled away so deftly, as only to leave on the rich blue ground the beautiful designs,—figures, trees, and wreaths in pure white cameo.* The rich and lovely deep azure blue was no doubt of metallic production. These beads were found still adhering to the clay,—from which another tide would have washed them, only to re-bury them in the sands below,—by Mr. Jno. Armstrong, of Rock Ferry, who has kindly placed them at our service.

Mediæval.

Silver Penny (half only) of William I. *Obverse,* full-faced bust of the conqueror crowned, within the inner circle. In such cases as this, the halving of the piece is very unfortunate, but in every probability the sceptre, to the left on our moiety, was matched by a similar one, headed by three pellets, on the opposite side of the bust, forming a well-known type of William's issues, examples of which are but rarely found. In this instance the sceptre is crowned by a Maltese cross, and has an orbicular base. Legend on this half, REX ANGLO.

* The Ven. Archdeacon Trollope, M.A., has ably reproduced restorations of the "Naples" and the "Aldjo" vases, in colours; *Illustrations of Ancient Art,* 1854.

Reverse, cross fleury of eight points, terminating alternately in fleur-de-lys and three pellets set pyramidally. Legend, N. LIECE. N, shewing the piece to have been produced at Leicester.* The coin is in fair average condition, the obverse superior.—Coll. *C. Potter.*

Three pennies (each half only) of Hy. III; two are of the ordinary English type, and one of these was struck in London: the third, with the king's head in a triangle, was minted in Ireland, and possibly at Limerick; but it is doubtful whether this moiety contains the mint-name, being much oxidised.

Fermail (ring-brooch) only five-eighths of an inch in diameter, but a valuable and possibly unique little relic of the religious symbolism prevalent in mediæval times, firstly in its inscription, and secondly in its perfect condition. Contractions, which varied according to space, of the Pilatial inscription, "*Jesus Nazarenus Rex Judæorum,*" it has frequently been our province to chronicle; but hitherto, whatever the article, we never advanced far in the last word. This little brooch, though not furnishing the whole complement, supplies an advance upon previous discoveries, through the inscription being carried (incusely) round both sides of the ring, and the absent portion is now limited to the three final letters, "rum." The pin is of silver, unornamented. Date 13—14 century.†—Coll. *C. Potter.*

Latten—*Broquetta* (little brooch) which, although barely half an inch in diameter, and thus of the smallest conceivable size for a dress fastener, is nevertheless inscribed over one face. Like those of the last mentioned, the characters are *incuse* and rather rudely cut, and somewhat worn, but yet

* The exact type, except as regards mint-name, is engraved by Mr. Hawkins in his Silver Coins of England, pl. xviii, fig. 237.

† Mr. Fairholt, in his invaluable *Costume in England,* figures one brooch, likewise inscribed on both sides, one bearing "*Ave Maria Gr.,*" and the reverse "*Jesus Nazarenus;*" it is also in silver and circular, but has been gilt.—*Glossary,* p. 466.

legible, forming the colloquial mediæval "posie" or motto, AMOR . VINCIT . OM(nia)—"Love conquers all things." This inscription is preceded by a cross *potent*, with a pellet in each angle.—Coll. *Chas. Potter.* Brooches, though chiefly worn on the breast, were often used as ornaments to other portions of dress, as convenience, taste, or fancy dictated. Upon hats and caps they were worn by both sexes, of all ages.* This class of ornaments is by no means unfrequently noticed by our early English poets and ballad writers, especially when describing female costume, and many instances occur of brooches in the precious metals, some of which were set with jewels. Few if any of these, however, to our mind, possess the interest attaching to a kind particularly described by Chaucer, "the flower of poets," in his prologue to *The Canterbury Tales*, where he says, describing the appearance of the Prioress :—

> Of smal coral aboute here arme sche baar
> A peire of bedes, gaudid al with grene,
> And thereon heng a *broch* of gold ful schene,
> On which was first i-writen a crowned A,
> And after that, "*Amor vincit omnia.*"

Though precluded, from its minute size, from bearing the "crowned A," our Meols example is one of the very few illustrations as yet discovered of this curious passage,—one thoroughly characteristic of the customs of the time, when Chaucer wrote his *magnum opus*, and when talismans, amulets, and sacred charms were in constant request and universal wear. Mr. Fairholt quotes the above lines in his *Costume*, but mentions no existing examples. In the *Collectanea Antiqua* the kind is also noticed, and one is engraved from a London collection, and also without the crowned A,† of about

* *Vide Ancient Meols*, for numerous illustrations.

† Vol. IV Pl. 28, fig. 4.

1¼ in. diameter: this is probably in pewter, but the metal is not stated. We are not aware that any other example has been published. As superlatively favourite presents during courtship, when "Love was still the lord of all," brooches were almost as eagerly purchased as finger-rings, if we may judge from the allusions of mediæval writers. Thus in the *Border Minstrelsy* we find—

> He courted the eldest with glove and ring,
> But he lo'ed the youngest aboon a' thing;
> He courted the eldest wi' *brooch* and knife,
> But he lo'ed the youngest abune his life.*

Again,

> O Diomede, thou hast both *broche* and belte
> Quich Troilus gave me in tokening
> Of his true luve.†

Ring-Brooch, of stout wire, slightly twisted, 1 in. diameter, pin wanting.

Oval Brooch, nearly an inch long, with six cusps for the reception of coloured enamel or glass: the only one complete retains a pellet of pale green glass.‡

Fermail of similar size, with pin, complete.

Fragment of a *shirt of chain-mail armour*, comprising sixteen links of circular form, some of which are attached singly, others doubly. They are formed of little strips of thin sheathing latten, folded flat. The terminations of these little rings are splayed, and overlapping here are secured together by a rivet. We are at a loss to assign any other purpose in this case, although latten does by no means commend itself as a good substitute for steel—quite the reverse. Still this mixed metal may have been tried, and found wanting.

* "Ballad of the Cruel Sister," III, 81.

† Henrison. *Testament of Cresseide.*

‡ A brooch of similar form is engraved in *Ancient Meols*, pl. vi, fig. 3.

Key, three inches long, cut out of sheathing metal, with two pointed projections for wards, a third being terminal.

Tongue of a small bell, semi-globular and looped.

Pewter. *Necklet or coronal*, of rare and very remarkable form. The body or main portion consists of four narrow links, each about 2½in. long, and ornamented in convoluted pattern; these are furnished with central loops (one on each bar) from which, by an intermediate ring, depended an ornament. One of these pensile objects alone remained attached; it is in the form of trifoliate leaf, very prettily articulated and looped at the stalked side. Mr. Potter, who owns this singular mediæval object of female ardornment, happened to secure in advance, but most unconsciously, two similar pendants, which there can be little doubt belonged to this very necklace, for no even analogous object has hitherto been discovered on this beach, rich as it has proved to be in mediæval relics. The total length of the ornament is over nine inches, and appearing to be complete in this direction, it may have been tied behind the neck by a ribbon.

Brooch (portion of), two inches in diameter, in open work, the rim composed of double lozenges and circles placed alternately, the latter having a large central boss encircled by pellets. A somewhat similar brooch in this metal, but with human heads in lieu of the circles, is engraved by Dr. Hume.*

Belt Tag, more substantial than usual, the sheath still containing its portion of leather. The termination is in form of an eagle standing within a corded circle, its feet resting on the terminal bar. This article has no doubt belonged to the livery-belt used in some family of distinction.

Hasp, oblong, cast with central orifice and trefoil ornament.

Vase (with handle) of minute size, standing only an inch and a half high, which may have been used by a lady for

* *Ancient Meols*, pl. vi, fig. 8.

scents or cosmetics. The central portion or body of this pitcher-shaped little vessel is decorated with seven horizontal bands of alternating striated patterns, such as have occurred upon several brooches in this metal, and as are still better exemplified on a remarkable pewter *needle-case* in the writer's collection, and engraved in the annual report for 1867.* Date 14—15 century.

Bell of small size, with loop for attachment to a collar or other article of dress.† It contains, in lieu of a tongue, a metallic pellet, and the open slit of the bell extends half way up each side, terminating here at a slightly raised horizontal rib. Including the loop, the object has only the height of five-eighths of an inch. The use of such minute bells, as additions to costume in English mediæval times, was very general and varied, but we are left greatly in ignorance as to the substances of which they were manufactured, and it seems extraordinary that lead or even pewter should have been employed for any sonorous purpose.

In *Ancient Meols*,‡ Dr. Hume supplies a good dissertation on mediæval bells generally, from which we cull the following examples of the use of the miniature ones in question :—

Lady (gold or silver) .	worn upon the girdle or the collar.
Gentleman (ditto) .	on the baldrick or sash.
Morris dancer . . .	round the leg, on the shoe, &c.
Clown, jester, or fool .	on the cap, jerkin, and gloves.
Festival of Fools . .	by the mock ecclesiastics, on their robes.
Criminal	on the cap to represent him a fool.
Horse	on the bridle ; larger ones being attached to the saddle-cloth and harness.

* *Transactions*, vol. xx, fig. 23.
† As in *Ancient Meols*, pl. xxvi, fig. 11.
‡ Pp. 255—264.

Dog . . . . . on the collar.
Hawk . . . . . tied to the neck.

A *bell* of about the size of this fresh example of a very rare class of relics, also belonged to the writer's collection; it was, however, more slender or more delicately fashioned, as it crumbled to pieces on examination. Such were, we opine, more probably attached to the dresses of morris dancers than to hawks or dogs, as the sounds emitted from pewter could not be audible at any great distance. The date of both may be as late as 15th century.

Boss or *stud*, 1in. diameter; the design a variety of the Maltese cross on a circle, each limb terminating in 3 pellets, a large one occupying the centre. The angles within the circle are open, but the whole face is ornamented with striated or reticulated work.

Head of a dress pin (?), circular, ornamented with 8 pellets, 4 large and 4 smaller ones, placed alternately within a denticulated border; the pin seems to have been iron.

Iron. *Uncertain object*, 8in. long, three-fourths of this being solid with a pointed extremity, the other being socketed. Two uses suggest themselves—that of a rude pike, and that of a "linstock," according to the manner in which the object is held.

Knives (4), one with strig complete, 8½in. long; part of the riveted handle of wood remains: 15—16th century.

Fishhooks (8) of types engraved and described, but uncertain age.

Nail of rectangular form, 3¼in. long.

Bolts (4), with lozenge-shaped "washers," one of which is nearly 4in. long.

Leather. Sheath of a knife, rudely ornamented with a slashed pattern and line borders; it is of two thicknesses, the inner one being of a fine and soft quality.

Two *soles of boots* and one "upper leather," of 15—16th century.

Bone. Skewer, formed from a naturally-tapering bone, 3in. long.

Stone. Whetstone, very narrow, but perforated for suspension to the side.

Terra cotta. *Tile* in red earth, probably from an altar or recess in a conventual church or domestic chapel. The complete design, of which it constituted a part, was apparently in shape of a lozenge, and composed of four tiles of similar contour, this being placed on the extreme left. Though not perfect, it displays an elegant fluted cross, its extremities pierced lozenge-wise, and the borders on its inner side being of similar character; the recessed ground in the angles remains trifoliate. In one of these angles some smaller trefoil flowers appear. So far as the writer is aware, this is the only known occurrence of an ornamented mediæval tile on the shore, and as the decoration is thoroughly sacred in character, it must have been connected with a religious building. As yet we lack thoroughly satisfactory evidence of the traditional *Lees Kirk* on the ancient Leasowe beach, to which it may have belonged. On the other hand it seems highly probable that the ancient manor house of the Meols family,—which is said to have been the latest of the tenements of the town that existed on the beach,—possessed a private chapel, when we reflect that the nearest churches, those of Bidston, Overton, and West Kirby, were several miles distant.

Marble, in yellow earth, and unshapely, by make as well as by wear: half an inch in diameter.

Brass. *Token* or counter, struck in brass at Nuremburg, about 16th century. *Obverse*—In the centre of the field a sun-flower, surrounded by a ring of 3 crowns and 3 lis, arranged alternately within a pearled circle. Legend—

HANNS . KRAVWINCKEL . IN . NVR ;* mint mark, rose. *Reverse*—Orb and a Maltese cross, within a double trefoil on a double triangle, the whole within a beaded circle. Legend—GOTT . ALLE . IN . DIE . EERE . SEI† in Roman characters. M.M. a cross batoneè. Found on Hilbre Island.

Token or counter of the same issuer. *Obverse* same as last. *Reverse*, Orb, &c., as last. Legend—GOT ES . REICH BLEIBT . EWICK .‡ in Roman characters. M.M. two quatrefoils. Found on Hilbre Island.

These pieces have only just come under especial notice; the first was found about two, and the second about five or six years ago. In this instance we cannot claim any connection with a religious house, as the mediæval cell of the monks must have been destroyed long before their fabrication.

Liverpool Notabilia.

In a short paper printed in our Transactions for 1865—6,§ the writer described the curious outcrop and disruption of a portion of an ancient forest bed, respectively at and near the mouth of the Rimrose Brook, north of Bootle. The dislocation inland resulted from the pressure of converging railway embankments, but here no animal remains were disclosed, though a few were stated to have been observed at a point nearer the strand. There could be little room to doubt the existence of deer, for instance, in this old but yet later bed of the two subterranean forest strata common to our lower levels. We have now to report the discovery of the skull of the *Cervus Elaphus* (red deer), with antlers, in a good state of preservation, in August, and during excavations for foundations of the New Fort, in process of erection below the Rimrose Hotel. These remains lay on the marl which

* Hans Kravwinckel in Nuremburg.
† All honour to God (himself).
‡ God's kingdom is eternal.
§ N.S., vi, 267.

intervenes between the two beds mentioned, and, it is said, four feet below the level of the Old Dock sill.

The following quaint formula of longevity is, we learn, still current in Perthshire :—Three old dogs make one old horse ; three old horses, one old man ; three old men, one old red deer ; three old red deer, one old oak ; three old oaks, one brent fir or bog pine. Thus if a dog be supposed old at 8 years, this will give a life existence to the horse of 24 ; to man, 72 ; red deer, 216 ; oak, 648 ; brent fir, 1944. We must remember, however, that these Scotch red deer may not possess the longevity of the denizens of our ancient forests, the remains of which are all now subterraneous, save where denuded by tidal action or the hand of man.

Newry Hunt. Considering the close connection of Liverpool with the sister kingdom, and the large proportion of its inhabitants claiming Irish birth or parentage, we have had few Hibernian relics to record. That now noticed has probably been lost by a visitor or settler here ; it is a button in silver, somewhat larger than a shilling, being an inch in diameter, and inscribed upon a ribbon border NEWRY HVNT. In the field is a hare sitting, and on the back I : I, and two Dublin Hall marks. This button appears to have been made towards the end of the last century for use on the coats and vests of members of the Newry Coursing Club or Hunt ; it was found among road rubbish in Harley Street, Vauxhall Road.

Spanish coin. In Wavertree Road some old money was lately found, but only one piece has come under observation. This is a copper one of Charles, King of Castile and Leon. *Obverse*—A castle between the letters C. and R. *Reverse*—A lion standing, with the right fore paw upraised.

Origin of the name of Liverpool. As a partially novel contribution on this subject, we reproduce from the *Athenæum* the following remarks of Mr. W. Poole King :—

" *Name of the Borough.* The name of Liverpool ought " to be no puzzle to antiquaries. As now spelt, it is evidently " a corruption, for in Samson d'Abbeville's map (Paris, " 1640), it is marked Leerpole. Leer is a word still in every " day use in Somersetshire and Devonshire for empty; and " surely the Mersey, before it was filled with ships and docks, " was at low water well entitled to the name of Leerpool. " Leer is a word used by the Germans, both as an adjective " and also as a verb; thus in Schiller's *Wallenstein's Lager*—

" Thun als wenn sie zu furnehm wären
" Mit dem Bauer ein Glas zu leeren."

Religious Plaque.—From an old-iron store in the town, a small German plaque of the last century was procured, a few years ago, by Mr. James Stonehouse. It is rectangular and cast in iron, and has been painted to resemble enamel and gold. The design is St. John the Evangelist seated at a table, upon which his left arm reclines and which supports an inkstand: the hands hold a roll, and the eyes are directed heavenward, as an eagle, descending from behind, is bearing in its beak a pen for the sacred scribe. Beneath, on a tablet, appears the following inscription:—

DA . GERIETH . ICH . AM . TAGE . DES . HERRN
IN . EINE . ENTZUCKUNG . UND
HOERTE . HINTER . MIR . EINE . STIMME
GLEICH . DEM . POSAUNEN . SCHALLE

which may be literally rendered in English—" Then got I on " the day of the Lord into an extacy, and heard behind me a " voice like unto a trumpet's sound." The original words of St. John, in the Revelation i, 10, according to our version, run—" I was in the Spirit on the Lord's day, and heard " behind me a great voice as of a trumpet."

Lord Nelson and the Potters.—The decisive naval action off Cape Trafalgar, and the extinction of its guiding spirit in the very blush of triumph, aroused, as is well known, an extraordinary amount of enthusiasm throughout our country, commingled with the deepest regret for the gallant commander. Probably in no one even of our *naval* ports were profounder feelings evinced for this public calamity than in Liverpool, as testified by the early town's meeting, representing all classes of society, and the large responsive subscriptions which resulted in the erection of the Nelson Monument at the Exchange. The general sentiment was exhibited in varied ways, and, amongst others, *portraits* of the departed hero were multiplied and held in great demand. But few original likenesses had been taken, a circumstance by no means remarkable, seeing that Nelson's name had only been prominently before the public for about ten years, during which he had been very seldom in England. The best known portrait of him is that painted by Hoppner, and engraved by Rodgers for Lodge's series of National Portraits: this has been frequently reproduced with slight variations.

A portrait, professing to be that of Nelson, appears upon several of the ceramic wares of this period, but has become rare, everything connected with or illustrating the career of this great naval commander, being greedily bought up by collectors. The portrait is not, however, recognised as a veritable likeness, and would seem to have been got up by some artist connected with the potteries either of Liverpool or of Staffordshire, and we are inclined to think it originated here, concocted possibly from early portrait or portraits, much upon the same principle followed by the Committee of the Shakespeare ter-centennial anniversary, in their production of a "national bust" of the glorious bard of Avon, from what busts and portraits could be held to be authentic. Whether the Potters' portrait of Nelson ever fared well, except by

"passing muster" with the lower classes, we have now no means of judging; certainly the "national bust" has failed to secure much favour in art circles.

One of the best examples we have met with, of this portrait, appears upon the quart *Tankard of Liverpool earthenware* now before us, and it will be observed to be characterised by an openness of forehead, and, indeed, a general length and breadth of feature, considerably exceeding those of recognised portraits. A photographic copy of this one having been forwarded to Norwich, where, as the capital of his native county, the largest collection of portraits and other relics of Nelson is suitably preserved, its authenticity as a general likeness was altogether ignored.* Nevertheless it possesses considerable interest for the student of local history as well as the ceramic collector. The portrait is not the only ornament, as a map of Cadiz bay and Cape Trafalgar, with plan of the attack and a complete list of the war-craft engaged in the action, with explanatory notes, add much both to the interest and value of the piece. The whole of this matter is printed in lilac on a white ground, this lilac colour being a favourite one with John Sadler, the Liverpool inventor of printing on ceramic wares, but it was rarely used at other potteries. The only additional colour is brown, introduced as a plain border on the rim and base, and in ornament on the handle. The

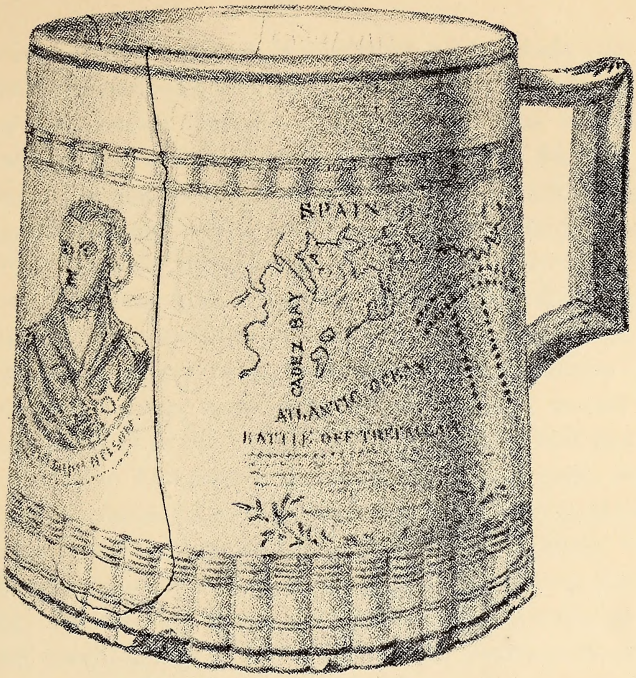
* In the Ceramic gallery of the Mayer Collection in the Museum is preserved a fine soup tureen, used by Nelson on board the "Victory." It is in old Staffordshire "Queen's ware" (cream coloured), but ornamented with flowers in blue. It may likewise be not generally known, that the late well-known authoress, Mrs. Alfred Gatty, of whom a good portrait and obituary notice lately appeared in the *Illustrated London News*, was the younger daughter of Dr. Scott, chaplain of the "Victory," and who supported Nelson when falling at Trafalgar. A son of hers, Mr. Chas. Tindal Gatty, is now resident in Liverpool, being attached to the staff at the Museum. One of the last survivors of Nelson's crew, John Oliver, is said to reside with his son in Toxteth Park, and some details of his career were lately furnished by one of our local journals. The veteran is stated to be still in the enjoyment of all his faculties, whilst claiming to have completed his one-hundredth year, through birth, at Tavistock, on the 10th of January, 1774. In addition to the "Victory," he served on board the "Bellerophon," and several other British men of war.

tankard was in all likelihood the manufacture and printing of Richard Abbey, who had been apprenticed to Sadler. The latter had retired from business some years before its date, for this will be seen to be virtually supplied. The piece is 5½in. high, and has a diameter of nearly 5in., in two places being moulded in imitation of the elegant bamboo work occasionally produced by Wedgwood, Turner, and other of the best Staffordshire potters in fine biscuit ware.

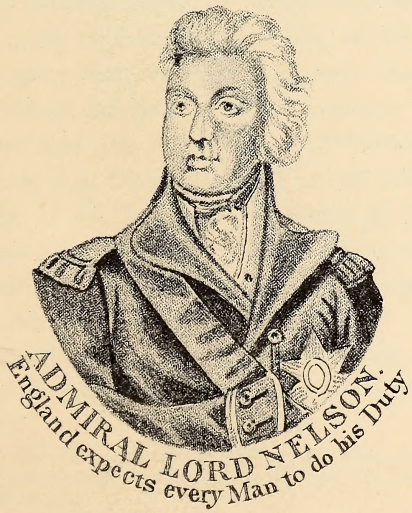
Returning to the printed designs, or rather illustrations, we find inscribed beneath the portrait, "Admiral Lord Nelson," and "England expects every man to do his duty"; whilst below the map to the right, enclosed within a laurel wreath, "Born Septr. 29, 1758; Died Oct. 21, 1805, aged 48 years." The map and plan bear the title—"Battle off Trafalgar, with "Refferences, Gained by the British Fleet under Adml. "Nelson over the Combined Fleet of France and Spain on "the 21st of Octr. 1805 in which action the intrepid Nelson "fell, covered with Glory and renown." To the left of the portrait is a list of the British ships, in double column, headed "Van" and "Rear," respectively:—

	VAN.	guns
1	Victory, Lord Nelson	100
2	Temeraire	98
3	Neptune	98
4	Conqueror	74
5	Leviathan	74
6	Ajax*	74
7	Orion	74
8	Agamemnon	64
9	Minotaur	74
10	Spartiate	74
11	Britannia	100
12	Africaine	38
13	Euryalus	36
14	Sirius	36
15	Phœbe	36
16	Naiad	38
17	Pickle schooner	10
18	Entreprenante cutter	10

	REAR.	guns.
a	Royal Sovereign	100
b	Mars	74
c	Belleisle	74
d	Tonnant	80
e	Bellerophon	74
f	Colossus	74
g	Achille	74
h	Polyphemus	64
i	Revenge	74
k	Swiftsure	74
l	Defence	74
m	Thunderer*	74
n	Defiance	74
o	Prince	98
p	Dreadnought	98



LIVERPOOL TANKARD.



PORTRAIT OF NELSON.

J.E.WORRALL, DEL.

The van series of eighteen is numbered consecutively (the rear one being lettered), and agrees in its ordnance with the *Official List*, except that the latter gives the guns of the "Victory" at 110, and the "Africaine" and "Naiad" 38 each, in place of 100 and 36, respectively. A note here says, "Be "it remembered that Nelson with the Van broke the line at "the 10th ship and Collingwood with the Rear at the 12th." The list of the van here corresponds with the official one as to guns, but not in sequence; for, as explained by a "N.B., "The names are placed in the order they came into action." In the official list they range according to the guns carried. Asterisks attached to the "Ajax" and "Thunderer" lead to a note:—"Senior Lieutenants commanding in the place of "Captains Brown and Lechmere, who are called home to give "evidence on the Enquiry into the conduct of Sir R. Calder."* The *present tense* here used shows that the engraving (for printing) was executed (if not the Tankard also) immediately after the action, and to supply a demand for illustrations of the battle and its hero even upon table pottery, at the end of 1805 or the commencement of 1806. The official account is of course more explicit in supplying us with the names of these lieutenants temporarily in command: that of the "Ajax" being J. Pulford, and that of the "Thunderer" J. Stocham.

Below, we find the summary—"33 British Vessels, with "2288 Guns, Beat the Combined Fleet of France and Spain, "consisting of 43 Sail & 2970 Guns, in which action 19 "were taken & one blown up by the superior"—the sentence is not concluded, apparently from lack of room on the smooth surface of the vessel.

The portrait of Nelson *upon paper*, which most nearly approaches that depicted on the tankard before us, forms the

* This Vice-Admiral had been ordered home to answer charges in reference to his failing to destroy some of the French and Spanish vessels on the 23rd and 24th July of this year.

frontispiece to an anonymous Life of the Admiral; but being printed and published in Liverpool, it was probably composed here. Believing copies of this work to be of very rare occurrence, we supply the full title:—"Memoires of the Life and "Death of the Right Honourable Horatio, Lord Viscount "Nelson, Vice-Admiral of the White; Knight of the Order "of the Bath; Duke of Bronte in Sicily; Grand Cross of "the Orders of Ferdinand and of Merit; and Knight of the "Imperial Order of the Crescent—comprehending Authentic "Details of his Glorious Achievements under the British Flag,

> "'He was a man, take him for all in all,
> "'We shall not look upon his like again.'
>
> "*Shakspeare.*

"Also a Sketch of the Life of Sir Sydney Smith. Liverpool: "Printed by Goodchild and Plant, No. 10 Dawson Street, "Williamson Square, 1806." The frontispiece of this octavo volume, drawn and engraved by T. Dixon, represents a couple of tritons, in the sea, supporting an oval medallion of Nelson, which is draped and crowned with a wreath in glory. As already intimated, the features much resemble the portrait on the tankard, and thus serve to confirm their nearly contemporaneous production. The chief difference lies in the "rat-"tails" of hair falling over the forehead: a well-known and characteristic feature of our current portraits.

Several varieties of what we have termed the *potters' portrait* seem to have been produced on earthenware for some years subsequently to the hero's death. If, as we presume, there was one respectable original, it must have been copied and re-copied *ad infinitum*, or at least until, like many current ones of Milton, no trace of the genuine features remain. Through the kindness of Messrs. Holt and J. H. Gibson, we are enabled to exhibit for comparison a couple of pint jugs, probably also of Liverpool fabrication; but the portrait

of Nelson, which each bears, while retaining the long and open face, is yet strangely diverse in general expression.

Our local *Life of Nelson*, likewise, has its list of the British vessels engaged in the Trafalgar action. As on the tankard, these, placed not as in the official list, but in the order of their attack on the combined fleets of France and Spain, and agreeing perfectly with each other, afford presumptive evidence of a common source. The volume is supplied with other illustrations than the portrait, and we notice, in a plan of Trafalgar, the guns of the "Victory" are only rated at 100. In glancing over the details of the then recent engagement, and its as fearfully tempestuous sequel, one cannot but be struck by the fact that the elements wrought as much if not more destruction even than man, on this awful occasion, annihilating what had been spared on the day of battle, the memorable 21st of October. The anonymous author relates :—"Owing to the "heavy gales of the 24th and 25th, by which the shattered "hulls of the enemy were driven in all directions, Lord "Collingwood found it impracticable to keep possession of "the prizes, and therefore determined on destroying them. "Here it was that the persevering spirit of our brave tars was "fully proved * * * for they had now to undergo the most "arduous undertaking that ever fell to the lot of any fleet. "However they succeeded in destroying them, and had scarce "done, when they were obliged to form once more a line of "battle, as Admiral Gravina, on his return to Cadiz, was "ordered to sea again, and came out; but that night it blew "so violent a gale that the French Admiral's ship the "Prince "'of Asturias,' was dismasted, and returned to port; the "'Rayo' was also dismasted, and added another laurel to the "already finished wreath which victory had interwoven. ". . . . Out of a formidable fleet of 33 sail of the line "which sailed from Cadiz on the 20th of October, only 11 "remained to the enemy that were not taken or destroyed."

The first poetic genius of our century, in a single happy touch, has aptly availed himself of this memorable occasion to "point a moral," and to transfix, with the keen shaft of satire, one of the proudest boasts of modern humanity. It occurs in his magnificent Address to the Ocean:—

> The armaments which thunderstrike the walls
> Of rock-built cities, bidding nations quake
> And monarchs tremble in their capitals,
> The oak leviathans, whose huge ribs make
> Their clay creator the vain title take
> Of lord of thee and arbiter of war—
> These are thy toys, and, as the snowy flake,
> They melt into thy yeast of waves, which mar
> Alike the Armada's pride, or *spoils of Trafalgar!*

GLIMPSES OF PRE-ROMAN CIVILIZATION IN ENGLAND.

By Joseph Boult, Esq., F.R.I.B.A.

(Read November 21st, 1873.)

The popular conception of the state of the inhabitants of the British Isles at the time of Cæsar's incursion is one of utter barbarism, such as was that of the painted savages discovered by the voyagers of the last three centuries. By interpreting some of Cæsar's statements most literally, and altogether ignoring others which appeared irreconcilable, it is assumed that his visits were paid before the slightest approach to civilization ;—when,

> Wild in woods the noble savage ran.

Yet a careful collation of Cæsar's own statements with each other, and with those of other writers, appears to show that the Britanni had made important progress in agriculture, in handicraft or manufacture, and in commerce. As the use of woad has been confused with that of paint, as applied by the savages above referred to, it may be desirable to point out the misconception on which this confusion appears to rest: especially as that misconception creates a prejudice unfavourable to the dispassionate consideration of all the facts obtainable.

It may be interesting to compare Cæsar's description of the Britanni with that of the Caledonians by Dio, and those again

with that of the Irish at a comparatively recent date. Cæsar says, A.D. 54 :—The Inland people seldom trouble themselves with agriculture, living on milk and flesh meat, and clad with skins; but all paint themselves blue with woad, that they may look the more dreadful to their enemies in battle: the hair of their heads they wear very long, but shave all the rest of their bodies, except the upper lip.

Dio says of the Caledonians, A.D. 229 :—They inhabit mountains, very rugged and wanting water; also desert fields full of marshes; they live on milk, on hunting, and on the fruits of trees; fish they never taste, though there is an innumerable quantity; they dwell naked in tents and without shoes; they rob on the highway most willingly; they war in chariots; they have horses small and fleet; their infantry is as swift in running as brave in battle; their arms are a shield and short spear, in the upper part whereof is an apple of brass, that while it is shaken may terrify the enemy with the sound; they have likewise daggers. They are able to bear hunger, cold, and all afflictions; for they merge themselves in marshes, and there remain many days, having only their heads out of water.

The apple of brass at the top of the spear resembles the pomegranates of gold or silver which were borne by the ten thousand chosen infantry who accompanied Xerxes in his invasion of Greece. The Celts called the apple or ball "cnopstarra," that is, knobshield; the purpose I apprehend being, like the Australian boomerang, to distract the attention of the enemy, and not to frighten him.

A certain G. N. thus speaks of the Irish, A.D. 1642 :—For the meere wild Irish it may be said of them, as of the Germans, that they wander slovenly and naked, and lodge in the same room with their cattle. Among them the better sort used to weare close breeches and stockings of the same, of red or some light colour, so straight that the unseemly parts

of the body were exposed to view. They used likewise a loose coat and a three-cornered mantle of coarse cloath, with a cap of thrums. Their linen is coarse and slovenly; they seldom cast off a shirt until it be rotten, and are coloured with saffron to avoid lice, which are incident to these people. In the more Northern parts, before the strict civilizing of them in King James his time, both men and women went naked in the very winter, having only their secret parts covered with a rug, and a loose mantle cast over them. Thus naked, they walke with their sword tyed unto them with a wythe instead of a belt. And at night men and women lye in a ring together, round about the fire, in the middle of the roome, with their feet towards it, folding their heads and upper parts in their woollen mantle, first steeped in water, to keep them warm, for they say woollen wetted, and warmed by the heat of their bodies, doth preserve heat.*

This description may be supplemented by the following of a drawing by Albert Durer, A.D. 1521, of Irish soldiers "from "Ireland beyond England." It shews two officers marching before three soldiers. The nearer of the former is clad in a shirt of mail, reaching nearly to his knees, a gorget of the same, with vandyked edges, spread on his shoulders. On his head is a finely shaped, evidently German, helmet, with a broad projecting front, not a moveable visor; his feet are in sandals of the rudest make, his legs below the calf are bare; his arms consist of a long dagger, a tremendous two-hand sword, which, measured by his probable height, must have been at least $5\frac{1}{2}$ feet long; five short arrows, with diversely-shaped heads, are tucked under his left arm, the hand of which holds a bow about 3 feet in length. The other officer bears a pike, is barefooted and sandalled. To him belongs, pro-

* *A Geographicall Description of the Kingdom of Ireland, &c.*, by G. N., 1642, a Tract in the British Museum, E 149/11; quoted in the *Athenæum*, 2nd September, 1871.

bably, the two-hand sword which a wild-looking follower bears so deftly, resting by its guard, on his right forearm. This man is clothed in what may be a frieze blanket or shawl, worn, as Irish women still wear shawls, over his head; the lining of this garment is of a darker colour than the other side; the wearer is bare-legged below a sort of petticoat or kilt, which, like that of the officer reaches to mid-leg; he is sandalled. The two other soldiers are also bare-headed. The hair of each man is left like a natural fell, roughly cut off above the eyes and at the back of the head, and the two last carry axes with long wooden handles, and one, probably the bugler, bears a great cowhorn. This pair have naked legs and feet; one is clad in a sort of spencer; his fellow shews a bull-neck and half a broad chest.*

It is curious to note the resemblance of the personal and domestic habits in the foregoing three descriptions by Cæsar, Dio, and G. N.; and it is difficult to believe there was an interval so long between the first and the last—nearly 1600 years. Possibly Cæsar was in error as to the object of using woad; which may have been an ancient substitute for saffron. Both dyes were probably used for protection against body-vermin, which would naturally avoid coloured surfaces on which they would be conspicuous.

It would be rash to conclude that the whole of a people were as degraded as the part described. In 1642 the condition of the inhabitants of the Pale was no doubt very superior; whilst at this very day many of the inhabitants of the great cities and towns of Britain are as brutelike as the Kernes described by G. N. On the other hand, as the coracle still lingers on the coast of Ireland beside the ocean steamship and the Atlantic cable, it is not impossible that the ruder habits which Cæsar records as existing in the *inland* parts of

* *Athenæum*, 8th January, 1872.

Britain were contemporaneous with a civilization much more developed. In fact Cæsar himself indirectly furnishes evidence in confirmation, and his testimony is supported by Diodorus Siculus. It is not stated at what parallel of latitude those "inland parts" commenced, nor whether they extended across the island from east to west; but Cæsar mentions that, whilst he was preparing for his first incursion, several provinces in Britain, having intelligence of the matter from merchants who frequented their coasts, sent ambassadors to let him know how willing they were to submit and to deliver hostages: conduct indicative of traders averse from the disturbing influence of strife.

It was on information that the Gauls, in all their wars, had received considerable supplies from Britain, that Cæsar justified his resolution to invade that island. When he granted his protection to the Trinobantes, he demanded forty hostages and corn for his army, which conditions were readily performed: thus the cultivation of some kind of grain must have then made progress. After the surrender of Cassivellaunus, Cæsar imposed an annual tribute, the nature of which, unfortunately, is not specified. According to Pliny, the Britons had discovered the value of marle as a manure, a fact which implies intelligent experience in cultivation.

These facts not only indicate that agriculture was developed, but that wealth was in some way accumulated, though the extent and geographical positions are uncertain. Cæsar states that in his time the most civilized people in the island were the Kentish men, whose country lies altogether on the sea-coast; their customs being much the same as those of the Gauls; and he observes generally that the sea-coast is inhabited by the Belgic Gauls, who went thither either to plunder or to invade the island, and having ended their wars, settled there, cultivated the earth, and for the most part retained their ancient names. But whilst in one place he

says the Britons call a town a thick wood surrounded with a ditch, and fortified with a rampier, to which they retire when apprehensive of incursions from their neighbours; in his general description he states the country is well peopled, and has plenty of building, much after the same fashion as in Gaul, where stone was used.

It is difficult to ascertain with any precision the period at which Britain was first laid under contribution by commercial people for its mineral wealth. The name given to the British Isles, Cassiterides, I apprehend, is purely Celtic, except the Grecian termination; the root being three words, *cas-sith-er*,* that is, the great money or medium for peace; implying that the natives were harassed and oppressed for tin, just as, centuries after, the Mexicans and Peruvians were for gold. In further illustration is *alcam* or *alcan*, the Welsh for ti , which is resolvable into two Erse words *alt* and *can*, or *cain*, signifying tribute rock; a good indication that the ore was the great price for peace and quietness. Donovan glosses *cain* as statute law, suggesting that at a later period such law was the equivalent for tribute, or for taxes, the substitute for tribute. Herodotus, writing 400 years before Cæsar's visits, says, "it is certain that both our tin and our "amber are brought from those extreme regions," the north of Europe.

Strabo, 400 years later, says, the islands are inhabited by men clad in dark garments, reaching to their feet, and bound round the waist with a girdle: they carry a staff in their hands, and resemble the furies in a tragedy; they live chiefly by their flocks, but have mines of tin and lead, and exchange these and hides for pottery, salt, and articles of brass with the merchants. Formerly the Phœnicians of Gadeira exclu-

* *Cas-sith*, pro Cashith, is possibly the root of the Roman name Cassius, and that surname seems to imply that Dio was concerned in the tin trade when he acquired his knowledge of Britain. The modern word *cash*, and its slang equivalent *tin*, are manifestly derived from the tributary use of the metal.

sively held this trade. It is to be regretted that the detailed accounts promised by Diodorus and Polybius have been lost. Cornwall was probably the most civilized part of England during the trade with the Phœnicians; and when the course of trade was changed, then, as Cæsar reports, Kent would take the lead; though the Romans conveyed their tin *viâ* the Isle of Wight to Marseilles.

Considerable stress is laid by Cæsar on the use of chariots by the Britons, who, he says, having driven to all parts of the enemy's army, and distributed their darts to the best advantage, frequently put the foremost ranks into disorder with only the noise of their wheels and horses; then forcing their way into the midst of the cavalry, forsook their chariots and fought on foot, performing at the same instant the part of nimble horsemen and of stable foot; their drawers, in the meanwhile, drawing off a little way out of the battle, placed themselves so conveniently, that if their party was too much oppressed by the enemy, they might safely retreat to them. So expert were they at this exercise, by perpetual practice, that they could stay their horses upon a full stretch, even in the midst of a descent; stop short and turn, run upon the pole, rest upon the harness, and throw themselves with great dexterity into their chariots. Diodorus says the inhabitants are the original people of Britain, and live to this time after their own ancient manner and custom; for in fights they use chariots, as it is said the old Grecian heroes did in the Trojan war. And he describes the chariots used in Gaul as drawn by two horses, which carry a charioteer and a soldier; and when they meet horsemen in battle, they fall upon them with their darts, then quitting their chariots, they to it with their swords. Now it is clear that unless chariots were imported, there must have been workshops in this country in which they were prepared, or for such parts as were not imported. It requires a skilful workman to make a set, or

even a pair, of wheels which will all run together truly; and it is clear from the agility of the men, and the ease with which the vehicles were manœuvred, that all the parts were well made and well put together; and that the harness also was good, the materials of which are not named. The use of the pole between the horses is not characteristic of rude artificers, as unless it worked easily on its centre, it would impede freedom of action. Then it is clear that the charioteers could not possess such skill and dexterity ascribed to them without much practice, consequently they probably had chariot races analogous to those in the Olympic games. The Britons were acquainted with the working of metals; they imported brass; they exported tin and some iron; their weapons were metallic, though their swords may have been as deficient in temper as those of the Gauls under Hannibal. It is very probable, if they had courses for horse and chariot races, that the Romans would adopt them for the like purpose. How many such there were is, I believe, undetermined; but there can be little doubt that the Roosdyke, near Chapel-en-le-Frith, Derbyshire, and the Roodee at Chester retain the Celtic names which they bore when so used. The former name indicates artificial construction, and the place is described as an artificially-formed valley, averaging in width forty paces, and thirteen hundred paces in length, mainly cut out of the hill to a depth of from ten to thirty feet, but where not so excavated, enclosed with banks of earth. At the west end is the meta, and at the east end the goal and other tumuli. The spectators were doubtless ranged along the bank throughout its entire length.* The Roodee at Chester is on low land partly, and possibly entirely, reclaimed from the river. The city walls on one side being greatly elevated above the level of the course, would give the people a view of the

* *Trans. Hist. Soc. Lancashire and Cheshire.*

whole; whilst persons of higher position were no doubt accommodated, then as now, in a grand stand. The first syllable roo is probably derived from C. *rudh*, which it resembles in sound, signifying a race. This conjecture receives support from one of the names of Chester, Caerleon ffawr, which is confused with caerleon mawr. The latter signifies caerleon great, as a distinction from other Caerleons on Usk, Ultra Pontem, and in Cornwall; and ffawr means a course, referring doubtless to the Roodee.

The early history of the manufactures of the British isles has been but insufficiently explored; were all the items of information collected, it is probable the condition of the people would be more correctly appreciated. There cannot be any doubt that in Ireland the workers in metal were expert long before the Christian era; and though the super-position of other social strata occasions difficulty in analysing contemporary strata in England, it is probable that the state of civilization was very similar. Any marked difference is inconceivable between people so near, and between whom there is evidence of frequent intercourse.

The Irish chariot is described as having a frame of wood, a body of small timber withed together, the pole decorated with silver, in one case actually made of silver, and embossed; wheels of wood and iron, nearly three feet in diameter; if of wood, with iron nave and iron tire: and in war all the edges of the chariot, the fellies of the wheels, and every available place armed with hooks, spikes, nails, &c., both for defensive and offensive purposes; the horses also seem to have been armoured. The remains of similar chariots have been found in England, near Market Weighton, Yorkshire.*

From the *Leabhar na g-Ceart*, or *Book of Rights*, it appears that, several centuries before St. Patrick, there were

* *Journ. R. Hist. Arch. Association of Ireland*, 1871, pp. 413—425.

in use coats of mail, swords, shields, ships, cloaks of fine texture, rings, fibulæ, chessboards and chessmen, &c.*

It is manifest that a people who had made such progress in the arts and agriculture had advanced beyond the mere threshold of civilization: to attain the excellence of workmanship testified by the prowess of their charioteers the makers must have possessed tools much more effective than the chisel and mallet. It seems impossible to doubt that they used a lathe, for how otherwise could the end of the axle be accurately fitted to the nave so as to admit freedom of motion? Should it be alleged that the axle and wheel were united, the question is only removed to the bearings of the axle; the bearings and the axle must have been true to each other. The potter's wheel is usually regarded as the primary form of lathe, and the wheel has been denied to the potters in Britain before Cæsar; but the possession of a lathe seems absolutely essential to the accurate preparation of iron or wooden wheels and axles. The little ball at the top of the spear—the knobstarra—is itself a witness to some power of the kind, for though the ball might be cast, and also the ring within which it was hung, so as to admit of its being shaken, they must have been bored or drilled to some extent to receive an axis. Men who, it thus appears, made use of cast and wrought metal to the extent implied by the skilful use of war chariots, could not have been mere painted savages like the American Indians or the South-sea islanders.†

* *Ibid*, pp. 511—513.

† I am indebted to the Ven. Canon Bourke, President of St. Jarlath's College, Tuam, for the following note. Another reason I have for knowing those old Britons were not savages, is, Dion Cassius describes Boadicea, queen of the Iceni, as "large—having a profusion of flowing yellow hair, *a large "golden collar* on her neck, *a variegated flowing vest, and a thick mantle "fastened by a brooch*, and a spear in her hand." The Iceni may not have been Kelts, they may have been German by origin, but certainly Kelts were in the armies that fought Cæsar; and this description of the queen is so like that given of the queen of Connaught at the time, that one must conclude the people of Ireland and Britain were at that time skilled in manufacturing material for cloaks and gowns; and making brooches and spears; and were skilled in colouring cloths. This shows they were not savages.

A people who were such skilful artificers in wood and metal, agriculturists dealing in grain and hides, miners of metal and salt, and competitors in chariot races and athletic games, must have had means of internal communication, for the peaceful interchange of commercial products or the arbitrary compulsion of direful war. It has been, and among many it is still, so usual to speak of only four Roman roads, it is difficult to realize the fact that during a residence of four centuries more roads were requisite, or that there were roads in Britain before there were any Romans. Yet on reflection it is manifest the Romans must have possessed many more lines of communication, of which their various stations are unmistakeable records; and it is very clear that the Britanni must have possessed numerous roads, if the other signs of their civilization have not been misinterpreted.

The four great roads have attained their preponderating estimate not alone as the great media of military and commercial intercourse, but because, after the departure of the Romans, they were adopted as geographical and political divisions. As means of communication they were analogous to the great leading lines of railways of the present day, and to the Great North Road, the Great West Road, the Holyhead Road, &c., of the late coaching days.

The four streets were :—1. Watling Street, which led from the coast of Kent to Cardigan, and derived its name from terminating on the shore of the Goidhael-linn, or Irish sea; 2. Ikenilde Street, leading from St. David's to Tynemouth, the signification of which is unknown; 3. Erminge Street, between St. David's and Southampton, the origin of which name is also unknown; and 4. The Fossway, from Cornwall to Lincoln, which probably owes its name to the nature of the country near its latter terminus.

Now, in considering the map with these lines of road laid down, from the description given by Trevisa and adopted by

Thorpe, it is manifest the Romans must have had other roads to various stations with which those do not communicate. Chester, Manchester, and Lancaster are examples of this isolation, and so it must be assumed there were other roads, or, as some suppose, branch roads. In addition are the vicinal roads, as they have been called, and the numerous portways, which latter, according to Hartshorne, are coeval with Roman occupation. One is mentioned in the description of the property of Whalley Abbey at Stanlaw.

The most careless observer must have noticed on the Ordnance maps that parts of many roads ascribed to the Romans are named High Street; they are to be found in all parts of the country, and probably there is not a county without one or more. In Westmoreland one of the hills bears that name. It is also well known that the principal street of many towns is called the High Street, and the coincidence seems worthy of attention; for why should a road in a rural and sparsely inhabited district, such as the top of a range of hills, bear the same name as the leading thoroughfare of a busy market town? Perhaps an answer to this inquiry may be obtained by transposing High Street into its Celtic equivalent of *borr*, great, and *rod* or *rot*, a road; that is, borrod or borrot, the final *d* or *t* being mute as though aspirated. Thus is obtained a reason why a town should be called a borough, and why the High Street of Southwark is frequently spoken of as the Borough *par excellence;* also why the descent of property anciently prevalent in South Britain was called Borough English, as being the principal way of inheritance, whereby the father's property descended to the youngest son; a practice which naturally prevailed at a time when the older sons went off and established themselves, leaving the father to bring up the younger son on his estate; that son in turn taking care of his aged father, or, in the event of that father's death, having a provision for his own rearing and maintenance, and a home for his father's widow.

Reverting, however, to the words *bor rod* as the name of roads, it presents a clue to the line of many highways, which may or may not have been used by the Romans, but were certainly known to the Kelts, by whom they were named ; and they are still in use.

The simplest illustrations are doubtless to be found in the names of places called Brough (Borough), Broughton (Boroughton), Brougham* (Borough-am, sometimes contracted into Broom, Brom, Brum, and Bram, thence Brompton and Brampton) ; also in Borough-bridge in Yorkshire, which was founded when the Romans diverted their road from Aldborough (the old great road), and carried it *over* the Ure, a short distance above the original ferry or ford. The terminal of Aldborough appears with similar significance in Ellenborough, a village in Cumberland, where the river Ellen is crossed by a Roman road. The road from Cockermouth northward diverges after crossing the Derwent ; one branch leading to Carlisle (Luguballium), the other to Maryport. In the fork is Papcastle (Derventic), which commands the approach from the south ; but the strategy of the place was entirely changed at a subsequent period, when the castle of Cockermouth was built at the confluence of the Cocker and the Derwent. The point of divergence in the roads is still called the Boroughs, an appropriate name for the junction of three great roads.

The name of the Roman station at Brougham, Brovacum, is almost identical with the modern name ; for sounding the *v* as *u* it may be resolved through Browam into K. *borr-rodh-oc-am*, denoting, I conceive, that the military station was established at the junction of two roads ; just as York was called Eboracum, more correctly I conceive Eboracam, from being built at the confluence of a foss, or muddy stream,

* On Morden's map of Cumberland in Gibson's *Camden*, Brougham appears as Broughton.

with the river Ouse. The terminal *am* usually appears as *um* in Roman names, as in Sarum, *i.e.*, sa-ra-am, the plain stream people; and others. The Romans testified in a very remarkable way their opinion of the pertinence of Keltic names, by substituting Mediolanum for the ancient name of Milan, the latter being apparently a contraction of the substituted name. The Romans had two stations in Britain known as Mediolanum, and one in Gaul. I apprehend it represents K. *meid-iodh-lon-am*, signifying the people on the great isthmus: *iodh*, the word rendered isthmus, means literally a collar or chain, formerly perhaps *a neck*. K. *am* seems to be the original of the A. S. *ham*, and, with the *a* sounded as in French, of the English *home*.

In tracing some of the terminations in *borough* to great roads, I do not overlook those which may have been derived from K. *bre*, A. S. *burg*, a hill; or borh a village, literally K. *bo-ur* the ox limit, referring to the fence which surrounded the homestead, to prevent oxen from straying at night, or from being driven away. Frequent reference to this borh appears in the ancient laws of the Anglo-Saxons. Every man was required to have or belong to a borh, that is, a known and fixed residence or address; every hlaford must have his hyred men in his own borh: if any one broke the king's borh, or the borh of other magnates, that is made forcible entrance or disturbance, he had to make bot; that is, paid for the borh-bryce or breach. Thus the word borh acquired two other significations, that of security, and that of the king's peace. The drawing of any weapon within the precincts of the king's court was a very grave offence down to a recent period: for the purpose of security the king's highway seems to have been protected by his borh. By Hen. I, the king's highway is defined as "Tanta vero debet esse via ut inibi duo carri "sibi possint ad invicem obviari, et bubulci de longo stimuli "sui possint assimulare, et xvi milites possint equitare de

" latere armati. Et via regia dicitur que semper aperta est, " quam nemo concludere potest, vel avertere cum minis suis, " que ducit in civitatem, vel burgum, vel castrum, vel portum " regium. Et unaquaque civitas tot magistras vias quot " magistras portas habet, ad theloneum et consuetudines " insignitas.'* And it is declared, " Omnes herestrete omnino " regis sunt, et omnia qualstowa, i. occidendorum loca, totaliter " regis sunt, in soca sua."

The word borh must not be confused with boor, signifying a herdsman, which is from K. *bo-aire* or *bo-aireacht*, the title borne in Ireland by the king's herdsman, who is styled a nobleman ; probably the term *dignitary* would more correctly denote the position of that officer, whose functions would to some extent coincide with those of the Lord Treasurer of later days. Subsequently the term *bo-aire* (boor) was applied to any herdsman, and then to any rude person.

The Lake district abounds with illustrations of the use I venture to assume of the words *borr-rod*. There are two Borrowdales. That in Cumberland is noted for its wild scenery and lead mine, through which flows the Derwent into the lake of its own name. This dale is traversed by the road from the black lead mine to Keswick, and thence westward by Braithwaite (? Braidthwaite), Derventic; and eastward by Penruddock and Penrith, giving their names, I believe, to *Ros*thwaite and *Barrow* falls ; Barrow in this, as in many other places, being an orthographical variation of borrow, and that of *borr-rodh* or *roth*.

The other Borrowdale is in Westmoreland, and is crossed by the Lancaster and Carlisle railway, about half-way between Lowgill and Tebay junctions. It is crossed by two highways, one of which is carried over Borrow beck at High Borrow bridge, the other at Low Borrow bridge, near the junction of

* *Leges Regis Henrici Primi*, lxxx, 3 ; and x, 2.

the beck with Lowgill, and just below the railway embankment : here the ordnance map shows a Roman station, probably a wayside fort to protect the traffic.

It is probable Boredale on Ullswater received its name from an ancient road passing through it, a conjecture confirmed by its proximity to Brothers Water and Sleet Fell. Brothers seems a corrupted contraction of *borr-rot-tir*, pronounced *borrotheer*, and signifying great road place ; the conversion into *brother* is obviously simple : on the banks of Brothers Water is *Gate*lands.

The name of Sleet Fell I refer to K. *slidhe* (slee) or *sligheadh* (sleeye), anciently applied by the Irish to the largest roads, so broad that the chariot of a king and that of a bishop would pass ; the five great roads leading to Tara were so called. The word is still in common use in the vernacular in Ireland ; but it has not entered very extensively into names, unless it may be traced in some of the terminals in *sley* and *sly*, as Bo*sley*, Di*sley*, Know*sly*, and Mo*sley* in Cheshire ; Mo*sley* Hill, Tilde*sley*, Maude*sley*, and Know*sley* in Lancashire, the latter appearing in Domesday as Chenulveslie, K. *ceann-ul-fidh-slidhe*, great woodhead road ; and Kimper*sley* and Bemer*sley* in Staffordshire, which are in close proximity to Ridgeway, Bewdley, the former not far from Burslem, which *may* be K. *burr-slidhe-am*, the great road people ; Borde*sley* in Warwickshire, and Row*sley*, Pil*sley*, Tan*sley* in Derbyshire ; *Slea*thwaite in Cumberland, and *Slea*ford in Lincolnshire, near which are Barrowby and Harrowby. Sometimes the initial letter *s* appears to have been omitted, as in various forms of Leigh and Lea, and their compounds ; and in Timperley (for Timper*sley*) a township traversed by the Roman road between Manchester and Bowdon, near *Broad*heath.

Borr-rod appears to recur again in names which include the syllable *broad, brad* and *brod.* They frequently recur in composition with *ford, bridge,* and *gate ;* an association very

corroborative of the root assigned. The word gate is usually referred to an A. S. root, but as *geata* it was in use among the Kelts for a gate or a door; its association with roads being derived doubtless from the use of gates in the borh, and afterwards in walled cities. *Broad*stairs in Kent is situated between Rams*gate* and Mar*gate*; and in Westmoreland is Broadgate near Windermere; Broadgate appears in Lancashire between Sherd*ley* and Pea*sley* near Sutton; and the position of *Broad* Green in Lancashire, adjoining one of the places named *Ro*by and the township of Thingwall, or Thing, is very suggestive. The word *gate* is of frequent occurrence, not only in the lake district but generally throughout England, as in *Gate*acre, Lancashire; High*gate*, Middlesex.

Rad, *Rod*, *Rot*, or *Rud*, I believe is of very frequent recurrence in England, as in Roade and Rode, and in Rotten Row; one in Hyde Park; one near Hindley, Lancashire; one near Englefield, Berkshire; one in Glasgow; and in Rotton Butts, Kirkby Lonsdale, and Rotton Park, Birmingham; Rotten or Rotton being K. *rot-an*, signifying great road; *Rotton* Park is situated on a main Roman road, and *Rotten* Row, London, is the great road plain, or field, now Hyde Park, from K. *roe*, a plain or field; Hyde Park being bounded by the Great Western road, and Hindley being on the road through Wigan; perhaps the name of Hindley includes the word *slidhe* (slee) referred to above.

Rottingdean, Sussex, is very possibly another compound of *rot-an*.

*Rad*nor in Wales and Cheshire, *Rad*ley, *Rad*nall, *Rad*stock, and *Rud*heath, are probably other examples in some parts of the country, if not in all.

*Rudd*land in Denbigh represents the Welsh form of K. *rith*, a race or running, which very likely occurs in Pen*rith*.

Without distinctly claiming Bowness on Windermere and Bassenthwaite Water as further derivations from *borr-rodh*,

it may be observed that Borrowstowness, Linlithgow, is frequently contracted into Bo'ness ; and both those places appear in proximity to ancient ways. Braidness, near Bowness, on Bassenthwaite Water, lends confirmation to the conjecture of such an origin.

Rother, which occurs as the name of three rivers, and as the prefix in the names of various places, I derive from K. *rot-tir*, (rotheer) the road place or district, *i.e.* roadland, or Rutland. Occasionally I think this is either contracted into *roth—*, or the *t* of rot is aspirated, in the latter case that letter would become mute ; but some foreigners would naturally give the sound of *th*, and thus would be produced Rother, as the name of streams, signifying road water.

From *rod* or *rot*, with the final letter unsounded, comes the modern word Row as applied to streets, as in the city of Chester, where, however, it is supposed to denote merely the covered walks, or rude sort of arcades, which give access to the upper floor of shops ; but, as denoting a street, or part of a street, it is of frequent recurrence, as in Paternoster Row, in the city of London ; Bunhill Row, also in London ; Richmond Row, Liverpool, and many others. High Row, the name of a road on Blencathara, is analogous to High Street. Analagous to this is Brow, in which the initial *b* appears to represent K. *bre* or *bri*, a hill ; thus is frequently found *brow*, both alone and in combination in the names of places ; also *brow*-head, *brow*-foot, *brow*-side, Everton Brow, &c.

Roth also gives name to various places, as *Row*ton, near Chester, where the army of Charles I sustained a defeat, which he is said to have witnessed from the Phœnix Tower on the walls of that city ; *Row*sley, near Bakewell, Derbyshire, so dear to anglers and artists ; the two *Ro*chesters in Kent and Northumberland ; *Ro*cester on the borders of Derbyshire and Staffordshire, near Uttoxeter ; *Ro*by, and the numerous *Ro*sthwaites. Ulcat Row, Green Row, Rosgill, Rostherne,

doubtless owe their names to the same root, and the ancient roads in their vicinity; and many similar may be found. Substituting *a* for *o* produces Raby, Rawgill, Rawhead, Rawgreen, &c.

The second largest of the Irish ancient roads was called *ramhad*, the sound of which would closely resemble *rod*: these led from the palaces of kings, and the inhabitants of the territories through which they passed were bound to keep them clean.* Rod-mor is the Irish equivalent for high-road.

The Kelts gave the name of *rod* or *rot* (rode or rote) to a highway so wide as to allow two chariots to pass each other, a definition which is one of those adopted by Henry I; "via "ut inibi duo carri sibi possint ad invicem obviari:" the bothar (boher) of the Kelts was as wide as the length of one cow and the breadth of another, besides room for their calves and yearlings, and appears equivalent to "via ut inibi * * * "bubulci de longo stimuli sui possint assimulare, et xvi milites "possint equitare de latere armati" of King Henry.

The forms which *bothar* assumes in the present day are very remarkable. In some of the Leinster counties Dr. Joyce says it is converted into *batter*, which is or was well understood in those counties to mean an ancient road. In Wexford it denotes a lane leading to a high road. The word occurs in early Anglo-Irish documents in the form of *bothir* or *bothyr*, which being pronounced according to the powers of the English letters, was easily converted into *botter* or *batter*. It forms a part of the following names:—Batterstown, Batterjohn, Ballybatter, Greenbatter, and Yellowbatter; also in Stonybatter, the great thoroughfare from Dublin to the districts lying north and north-west of the city. It was known by the name of *Bothar-na-gcloch, i.e.*, the road of the stones. He adds, Booterstown near Dublin is another member of the

* Dr. O'Donovan. Supplement to *O'Reilly's Irish-English Dictionary*, in verb.

same family; it is merely another form of Batterstown, *i.e.*, Roadtown.*

From this root is derivable another series of names, those which have the prefix *butter*, which seems to be the form which it has assumed generally in England, though *Batter*sea, Surrey, is identical with the usual modern Irish form.

Of places in England having the prefix *butter*, I have collected the following; there may be more. Butterbent, Butterback, Butterhouse, near Hyde, and Butterhill in Moston, all in Cheshire; Buttersteep in Berkshire; Butterilkel, near the ancient camp called Hard Knott Castle ascribed to the Romans, but probably British; Buttermere and Buttertarn, all in Cumberland; Butterley, in Derbyshire; Butterwich, in the three counties of Durham, Westmoreland, and Lincoln—in the latter it occurs twice; Buttermeer, in Hampshire, on the borders of Berks and Wilts; Butterton, in Stafford, resembling Buttertown, co. Waterford; Butterside, Yorkshire; and Butterworth, near Oldham, Lancashire. In Scotland the prefix appears in Buttergash, Perth; and Butterbridge, near Glencoe, Argyle. In Wales is Batternog, Caernarvons.

If to the foregoing be added the names of places in which occurs the word *street* in all its various forms, it seems not improbable that the majority of places in England derive their names from proximity to roads; facility of communication encouraging settlements, just as the earlier settlements rendered roads necessary. It is usual to derive the word street from A. S. *stræt;* but probably it represents K. *sreath*, a row; modified by the interpolation of the letter *t* between the *s* and *r;* as in *srath*, the bottom of a valley, which became strath. Such names as Butterley (for Buttersley), Rowsley and Streatley (for Streatsley), indicate the proximity of two classes of roads to the places so named.

* Joyce, *The origin and history of Irish names of places*, pp. 42–4; also p. 338.

The sound of the modern word *street*, however, more nearly resembles K. *strid* (streed), pronounced quickly, just as the word *wolve* in the singular has become *wolf*. *Strid* signifies through, and doubtless appears in the name of the stream near Bolton Abbey.

> The pair have reached the fearful chasm,
> How tempting to bestride!
> For lordly Wharf is there pent in
> With rocks on either side.
> This striding place is called THE STRID,
> A name it took of yore;
> A thousand years hath it borne that name,
> And shall a thousand more.

It is manifest that the places bearing the above-mentioned classes of names were founded before the arrival of the Romans, during their supremacy, or subsequent to their departure. If during the latter period, it is equally clear that the Keltic population was not exterminated by Teutons, nor by any other foreign intruders. It seems reasonable, however, to assume that those places were founded at intervals during the three periods; and that the pre-Roman roads were constructed, as were the most important of the ancient Irish roads, and paved with large blocks of stone, somewhat like the old Roman roads; a fact that is proved by remains which can now be traced.*

For rapidity of intercourse the travellers of those days, and especially the bearers of government despatches, would require to change horses; and stations for that purpose may be traced in such names as Appleby, Applecrag, Appledone, Appleton, Applethwaite, Appledrum, Appledurford, Applegarth, Appleshaw, Appletree; and possibly in names having the prefix maple,—as Maplebeck, Maplestead, Mapleton, and Mapledurham. Thus Appleton is referrible to K. *ab*, business, and *pill*, a horse, denoting the horse business place; and

* Joyce, *ut supra*, p. 43.

Mapleton has the same signification, *ma* being synonymous with *ab*. From *pill* comes the modern word pillion, belonging to a horse, or perhaps a modified form of *pillin*, a pack saddle. Of course there were other places at which relays could be obtained; but these appear to have been special stations round which villages and towns subsequently grew, as round modern railway stations. It is remarkable that so many names embody words designating different kinds of roads, as they plainly shew that the villages, townships, hundreds, and counties, were formed subsequently to those names; and that in the remote ages when that occurred, improved communications promoted the growth of population and of settled government.

Facilities for communication are essential to intercourse between different communities; their provision is almost the first consideration with the invader who wishes to consolidate his conquests; they are the first steps in civilization; and, therefore, where they exist, it is allowable to assume that civilization, as ordinarily understood, has begun. I conceive perfect civilization to be that condition in which MAN, as a whole, is most perfectly developed. Hitherto all civilization has been partial, different epochs being marked by the pre-eminence of special qualities: the Phœnician, of those favourable to commerce; the Grecian, of those conducive to physical development and intellectual refinement; the Roman, of those required in conquests, politics, and jurisprudence. *Mens sana in corpore sano* forms the as yet unattainable goal of all efforts to realize the perfect man, that is, the most civilized.

From the foregoing facts, or supposed facts, it appears that almost all the essential elements of modern civilization were known in these islands before the arrival of the Romans. There were roads, agriculture, mining, commerce, and manufactures. To the Romans the Britanni were, doubtless,

indebted for the first introduction of Christianity; but if it can be shown that they enjoyed the blessings of regular civil government, their claim to be considered civilized cannot be denied: they must cease to be regarded contemptuously as mere painted savages.

The existence of roads, agriculture, commerce and manufactures is presumptive evidence of the coëxistence of settled government; for the security conferred by such government is correlative with one or more of the conditions first named. But more direct evidence of recognised government is fortunately attainable. Though Cæsar's hasty report does not afford much information, it is more suggestive than those of his successors, and will probably compare favourably with the reports of later adventurers or buccaneers. The caciques of Peru seemed to have been sketched even more hastily than were the kings or reguli of Britannia.

Among illustrations of Scandinavian civilization the institution of *things* is frequently adduced, and great pleasure is derived from the belief that the hustings, so recently and wisely abolished, and other popular assemblies, are legacies from them and the Teutons; but the *thing* is especially and emphatically ascribed to the Danes.

The "thing," however, is mentioned in the Domes of Hlothhære and Eadric, who reigned near the close of the seventh century, in which, according to No. 8, "If one man "make plaint against another in a suit, and he cite the man "to a 'methel' or to a 'thing,' let the man always give 'borh' "to the other, and do him such right as the Kentish judges "prescribe to them."* The word "thing" appears to be K. *ting* (pro. theeng), a tongue; and thus closely resembles not only the palaver or "talkee talkee" of uncivilized races, but the Parlement of the French, and the august Parliament of modern British.

* Thorpe, *Ancient Laws and Institutes*, I, 31.

The word "methel," used above as equivalent with "thing," is probably Keltic also. In that language *meithle* signifies a crowd, a concourse; and *meitheal*, a number of men working together at any work, especially reaping; but those words, especially the first, appear to be from a root *medh* or *meigh*, signifying a balance or scale. If compounded with *teall*, signifying stealth, thievery, it may be due to a time in which cases of alleged theft were referred by plaintiff and defendant to their neighbours assembled for any undertaking requiring numbers. So many of the words in the ancient laws which appear to be, in Thorpe's opinion, untranslateable, are resolvable into Keltic forms, it is not only very possible that "methel" is so, but that much elucidation of difficult points might be gained by a more extended comparison. The word "moot" or "mote," A.S. *mot*, is clearly identical with K. *mod*, a court; and the modern word "meeting" is a lineal descendant of K. *medh-ting—d* aspirated being mute.

Specimens of the primitive series of the social strata in Britain, I believe, are to be found in its most Keltic parts; and in Ireland it is well known that assemblies were held for proclamation and promulgation of ordinances, if not for the framing of laws. Those assemblies were usually, if not universally, held on the tops of hills; and Tara, in Meath, has acquired world-wide renown as the most noted.

Dr. Joyce derives the name of Tara from *teamrach* (pro. taragh or towragh); but he says that all these places are called in Irish *teamhair* (pro. thawer) of which teamhrach is the genitive form. Quoting from Cormack's Glossary, the Doctor says the *teamhair* of a house is a *grinan* (balcony), and that the *teamhair* of a country is a hill, commanding a wide view: a description which applies to every *teamhair* in Ireland, for they are all conspicuously situated.*

* Joyce, *ut supra*, pp. 271—2.

Looking to the use of those hills, it seems very probable that many of them would become sites for palaces, or places of security for chieftains and sovereigns, as those men became more powerful; yet, as it is scarcely probable they were selected originally because of the beauty of the prospect, but rather for their security from surprise, it may not be thought presumptuous to attempt to trace the names of Tara and Teamhair to their original roots and significations. Doing this, it appears that Teamhair is resolvable into K. *ti-am-air*, the aspiration of the letter *m* is quite grammatical; the literal meaning of the root syllables is, judgment or government-occasion-concerning: denoting that the hill was used when required for the purposes of the government or judgment—upon government occasion, or giving judgment, both functions of a "thing."

The Tors of Devonshire, Derbyshire, Cumberland, and other parts of England, including Noctorum, Cheshire, (Knoctorham) are doubtless ascribable to this root, and probably many were used for the like purpose. The word *tower* also seems a derivative; and also *thor*, as in Kirkby-Thore, Westmoreland, Thoresby, &c. Even as the name of deity, Thor may only signify the impersonation of order or law based on wisdom, proverbially ascribed to a multitude of counsellors.

Another name for Tara in Meath *Connailt*, seems resolvable into *conn*, counsel, and *ailt* an eminence, or a house; a term applicable, therefore, both before and after the erection of "Tara's hall." Dr. Joyce may be perfectly correct in referring Tara to the genitive of *teamhair*, but it is resolvable into *to* place, and *radh* speech, which some may prefer; the word *tara* also signifies a multitude; a signification doubtless due to the large assembly of people who assembled on the hills on occasions of public solemnity.

Premising that the letter *t*, when it begins a word or syl-

lable in Erse, is usually pronounced like the English *th*, I will invite your attention to the hill in Cumberland which is generally called Saddleback, from the resemblance part of its outline presents to that article on the approach from the East, and in that aspect only. Its original name is Blencathara, the termination of which is manifestly identical with the Irish Tara. The first two syllables seem to have reference to the knobs which form the saddleback, and especially the pommell and the crupper, as viewed from the West, and are referable to W. *blaen*, a top, and *ca*, a keep, a holding: possibly the Welsh *blaen* is from the Irish *billain*, signifying an excessive boss, a knob: the whole consistently indicating a hill of assembly, occupied as, or converted into, a stronghold.

In the neighbourhood of Saddleback, and close to the railway station of Keswick, is another hill, the name of which is very suggestive of a similar adoption, namely, Latrigg, or, perhaps more correctly, Lathroid, (lawreed) an assembly; but looking to the proximity of the "thing" of Blencathara, the correct form may be *ladh rig* for laghrig, that is, the law or thing of the suzerain, or rex regulus, which *rig* denotes.

Laterigg, near Windermere, is allied to this, from K. *lathar*, a place of meeting.

In the Latterbarrows, near Windermere, Wastwater, and Ennerdale appear places of meeting near great roads; so also "Ladder Brow," a name for the Shepherd's crag near Lodore.

The K. *lagh* (law) signifying order, is apparently the root of the modern English word law, so habitually associated with order of all kinds; to the same root I ascribe the names of many of the Law or Low Hills with which Britain is studded. It is well known that subsequently to the departure of the Romans, moots or "things" were held in every borough, hundred, and shire; and that attendance was compulsory on every man. The places of assembly must therefore

have been extremely numerous; and as the moots or things were held in the open air, and in conspicuous places, it seems as if there may be many more traces of them than has been hitherto supposed. Therefore, that in addition to the limited number of places bearing the names of Dingwall, Thingwall, and Tynwald, many of those with names of which *thing* or its equivalents, as tang or tong, are constituents, represent places of assembly: as Not*ting*ham, Hun*ting*don, and many others; but it would be rash to assert that any one of them is a place of the kind, until the probable origin of its name has been carefully considered.

Other hills, which appear to have been used for the promulgation of ordinances or edicts, are some of those in which the word *sea* appears, from K. *sigh* (shee) a hill, as Sea Toller and Sea Tallan, more properly, perhaps, Sea Tollan; of very similar significance, namely, great tax or toll hill; being the places from which subsidies, tributes, aids (K. *eids*, A. S. *hydes*) were levied.

The name of Malpas, which occurs in the counties of Chester, Monmouth, and Nottingham, is probably from K. *maol-beas*, tribute hill, or *maol-bas*, death hill. Originally "things," they may have been used for the receipt of the ordinary taxes; or, being near the frontiers of Wales and Northumbria, for tribute from conquered enemies.*

Before quitting this branch of the subject, special reference may be permitted to that well-known Shropshire hill, the Wrekin, which is another and apparently unique designation of an eminence used for legislative purposes. The name of Uriconium, the ancient city at the base of this hill, is resolvable into K. *ua-ri-con*, that is, the district counsel house;

* Another early name of Malpas in Cheshire, Depenbach, is probably K. *depen* for *beinn-bac*, the place of *the hill of defeat*, or *the hill of peace*: the Keltic word for place having been dropped in usage. To refer the name of Malpas to the state of the roads, *malus passus*, or to Norman, is trifling pedantry worthy of some uninformed period when the real origin was forgotten.

and if the Keltic name be pronounced as two syllables, giving to the letter *i* its proper sound of *ee*, the result will closely resemble Wrekin; thus the city seems to have grown round the hill of assembly, the law-hill of the district; and subsequently to have been adopted by the Romans, who found it well adapted for a border fortress.

It is not unreasonable to expect that traces should remain of the laws promulgated on these remarkable eminences, if their use is truly conjectured, and if the records of those laws have not been swept away by the Romans and by subsequent troubles; and such traces are to be found in the domes of the Anglo-Saxon period. The designation of the laws or ordinances of that period, domes, is almost identical with K. *do meas*, the latter word being glossed measure, judgment, award, and appraisement; and the whole scope of these dooms is to determine the compensation or bot to be paid for any injury, every offence being appraised at a specific amount. K. *do* or *de* is the preposition of, and one form is retained in the French de. The title of the ordinances correctly represents their scope, which is distinctly that of appraisement. These words have the like meaning in Domesday, the last syllable being K. *deigh*, search or enquiry. They appear again in the title Doomster or Deemster,* given to a judge in the Isle of Man; and in that of Daysman, used in the authorised version of the Book of Job.

Various terms in these ordinances, which are given by Thorpe technically, as though the definite meaning is unascertained, are easily resolved into the Keltic. The words borh and boor have been given above; bot is referable to the time when cattle formed the medium of pecuniary transactions with the Kelts, as they had been with the Romans, and probably with most peoples, before ring money or coins were

* The final syllable ter seems to have relation to K. *tair*, gives.

introduced. It appears to represent *bo-ait*, signifying "in-"stead of cow," and means the consideration to be paid. Its use survives to this day: when a man goes on a *boot*less errand, because he cannot shew any result; or when another, in closing a transaction, pays more than is strictly due, *i.e.*, gives something to *boot*.

In the domes of Æthelbirht, who died in the beginning of the seventh century, after reigning fifty-six years, are the following examples among others:—

6.—If any one slays a freeman, he is to pay fifty shillings to the king as "*drihtin-beah*."

In a note, Thorpe says of the last word, literally as a lord-ring, which in a sense is doubtless correct, but scarcely conveys the penal intention of the ordinances, which, I apprehend, is that the slayer shall pay the value of the life taken, apprised at fifty shillings, and this is expressed in the term used if it be referred to K. *de-ri-toin-be*, literally the king's life-value. Subsequently *de-ri* assumed the form of driht, and the meanings of royal, lordly and noble; and rings and ring money were called *beah*, possibly from being principally used for the heavier compensations, which were paid to the king or lord, and for life.

32.—If any one thrust through the "riht ham-scyld," let him adequately compensate.

Mr. Thorpe is entirely at a loss to explain the words riht-ham-scyld, and in the course of a long note, says he is induced to believe "we must still have recourse to conjectural criticism in removing our difficulties." The conjecture I venture to offer is, that the words represent K. *rith am scoilt*, meaning the "arm, not splitting or cleaving;" and as the injury might vary in every case the bot was variable but "adequate."

33.—If there be "feax-fang," let there be fifty sceatts for bot.

Mr. Thorpe supposes this to refer to taking hold of the

hair; if, however, K. *fecc-fang* be susbstituted, it would refer to taking hold with the teeth, literally teeth-impounding: either offence indicates a rude people.

In the dooms of Hlothære and Ædric are the following:—

11.—If one man call another perjurer in another's "flet," or shamefully bespeak him with abusive words, let him pay a shilling to him who owns the "flet," and six shillings to him to whom he said the words, and twelve shillings to the king.

Mr. Thorpe infers from c. 39 of the dooms of Alfred, that "flet" was a name given to the habitation of a ceorl or other inferior degree.* That ordinance refers to fighting; this to mere brawling. I apprehend "flet" is K. *fleadh*, a feast or entertainment, and that the ordinance referred to quarrels over drink. The following doom, No. 12, provides—If a man "steop asette" to another where men are drinking unoffendingly, according to ancient usage, let him pay a shilling to him who owns the "flet," and six shillings to him to whom he the "steop asette," and twelve shillings to the king.

Very possibly the word steop is identical with the north of England stoup, a drinking cup, from K. *stabh;* but the expression "steop asette" seems indicative of a transition in the language, for "asette" resembles K. *e-soiteadh* (e-seeta), signifying upset, literally "not seated;" and the description of the offence, I apprehend, should be rendered, *if a man upset the drinking cup of another.*

The word "asette" appears in the title of the Domes of Æthelbirht, and of those of Hlothære and Ædric, in which it is translated as meaning "established;" at first this appears irreconcilable with the meaning ascribed to it above. But the prefix *a* is in the latter a substitution for K. *e*, which is a negative particle. The prefix *a* may be a sign of the present,

* In the Glossary the word flet is rendered cubile, cœnaculum, stratum; *also* house, home.

future, and preter tenses ; in the titles of the Domes I apprehend it implies that they are established for the future.

Other illustrations may be adduced on a future occasion in an attempt to exhibit the close resemblance between the modern English and the Erse dialects, if the attempt be not forestalled by some one more competent.*

The interesting topic of pre-Roman civilization in the British Isles is thus but very imperfectly treated : in fact this essay is another attempt to invite attention to a train of investigation which has been overlooked in consequence of the singular but general adoption of the theory of a Teutonic re-settlement. A complete investigation would include the evidence as to the antiquity of the trade in metals, especially in tin ; at what date the Phœnicians opened their communications with the British Isles, either directly or through the medium of their colonies in Spain ; and how far the bronze weapons used in the siege of Troy, or the bronze adornments of Solomon's temple, were tempered by or enriched with British tin. The assertion of Herodotus, writing 450 B.C., it is "certain that both our tin and our amber are brought "from those extreme (*i.e.* hyperborean) regions," has been already quoted ; and Canon Greenwell, who examined so many barrows, and has given their contents so much study, infers that the dwellers in the woods lived in organised society, possessed domestic animals, cultivated grain, manufactured woollen, and perhaps linen, fabrics, had considerable skill in metallurgy, and were acquainted with the potter's art, though ignorant of the potter's wheel ; and that they lived in a period that centres in B.C. 1000, or thereabouts.

It is true such conclusions are utterly at variance with the received impressions as to painted savages, or to a Teutonic replanting subsequent to and consequent upon a Keltic exter-

* A student will find a very useful guide in the *College Irish Grammar*, by Canon Bourke. London—Williams and Norgate. Dublin—Mullany.

mination ; but they are eminently consistent with the other lessons taught by history, namely that the progress of society is tedious in the extreme. It is to be hoped that the prevailing impression as to the state of Britain in those early periods may be re-considered, and that the facts still obtainable may be carefully collected and arranged. When this is done, it may possibly be found that Britain, at any rate after the Roman era, was a centre of civilization to all the surrounding countries, thus re-distributing the great benefits conferred by the preference of the imperial and other potent magnates of Rome. Her wealth and her intellectual culture would be esteemed by all ; her temperate and genial climate would be especially attractive to the Frisian, Belgian, and Dane ; whilst the piety, beneficence, and zeal of her Christian disciples would repeat within her limits that sad and noble heroism which excited the wonder and admiration of all beholders. It seems strange, very strange, that the veil should be so tenaciously drawn over all that must have been, if reliance is to be placed upon the general results of our historic experience.

CISTERCIAN ARCHITECTURE, AS ILLUSTRATED BY THE REMAINS OF WHALLEY ABBEY.

By Wm. A. Waddington.

(Read January 8th, 1874.)

About five and a half centuries after St. Benedict had founded his new monastery, under his new rule, on Monte Casino in Italy, certain monks of the Abbey of Molesme, in Burgundy, discontented under the relaxed discipline of the Benedictines, and following the example of the Cluniacs and Carthusians, established in A.D. 1098 the Abbey of Cistercium, or Cisteaux, in the bishopric of Chalons, in Burgundy.

Thus the great *Cistercian* order arose; taking its name from the place of its first foundation.

The Cistercians were also called the "White Monks," from the colour of their habits, and sometimes "Bernardines," from the great St. Bernard, who was Abbot of Clairvaux, in the diocese of Langres, about A.D. 1120, and whose great learning and piety brought his order into favour and prominence.

Their rule was based upon that of the Benedictines, but was much more severe in character; and they maintained for two centuries, at least, their rigidity of discipline with a consistency which secured for them great popularity. Their first establishment in our country was founded in A.D. 1128 at

Waverly, in Surrey; and at the time of the dissolution they had seventy-five monasteries and twenty-six nunneries in England.

Their code of regulations affected not only their form of worship, restrictions as to diet, and all the internal economy of their establishments; but just as strictly directed the selection of sites for their houses, the disposition of the various monastic buildings, and the degree of their ornamentation, both external and internal.

It is to the latter portion of their "rules" that we wish to draw attention; and after remarking on the most prominent of these regulations, we shall see how far the remains at Whalley represent the arrangements and architectural peculiarities of a Cistercian church and conventual buildings of the orthodox type. In this we shall be assisted by the diagrams and sketches of the remains as they exist at present.

It is necessary to remark here that the facts before mentioned have been brought to light mainly by the efforts of Edmund Sharpe, Esq., M.A., of Lancaster, who commenced his study of Cistercian architecture thirty-two years ago, when in possession of one of the travelling fellowships of the University of Cambridge.

From that time Mr. Sharpe has given very close attention to the subject, and has accumulated a mass of information from actual observation of most of the important abbeys of the order in Europe. The results of his researches have been set forth in various works, and Societies' papers; and his views (which have been adopted and enlarged upon by many writers, who have also added important confirmatory evidence), are now pretty generally accepted.

Mr. Sharpe being struck by the peculiar uniformity in the planning and construction of Cistercian abbeys, concluded

that it must have been the result of positive regulations. He then, at great pains, obtained access to the early chronicles of the order, and was rewarded by the discovery of the rules just mentioned;—and we refer those interested in this portion of the subject to his paper on Cistercian Architecture, read before the Royal Institute of British Architects, in June, 1871. In this paper, after remarking on the fact that 1200 abbeys were founded, erected, endowed, and added to the order, within 230 years from the foundation of Cisteaux; Mr. Sharpe says:—"Now of these 1200 monas-"teries, I do not know one the general plan of which is not "in accordance with that of all the rest; nor a single church "which does not bear in its details the impress of its Cister-"cian origin." We cannot do better than repeat also the words of Mr. Sharpe in a paper read at Furness Abbey, in August, 1850, before the British Archæological Association. In reference to these rules he says:—"As the whole of these "were borne out and confirmed by all the examples with "which I am acquainted—as there appears indeed to be "scarcely a single case in which a variation from these rules "occurred, within the first two centuries of the existence of "the order—I conceive that so interesting a fact, established "as it would appear by the concurrent testimony afforded by "the internal evidence of the buildings themselves, and the "external evidence of contemporaneous historical record, and "unnoticed, as I believe it hitherto to have been, is worthy of "peculiar mention and illustration."

And now let us turn to the rules themselves, or at least to those which most materially affect our subject.

First, then, as to the selection of sites. It was distinctly enjoined that their monasteries should be built in remote situations, "severed from all conversations and habitations "of men." They were generally situated in the narrowest

part of some valley, and it is only in a few cases that this rule was departed from.

In recalling to mind some of the localities in this country most celebrated for their natural beauty, we shall find that they have become invested with an additional charm from the fact of the existence amongst them of monastic ruins; and these chiefly Cistercian. In illustration of this we need only to name the abbeys of Furness, Rievaulx, Tintern, Netley, Calder, and Fountains.

It is to this rule that the present state of the abbeys of this order is chiefly attributable; for when the monks were driven from their homes, there was no population in the immediate vicinity to sustain them; and whilst there are to-day many glorious churches, of the orders of St. Benedict and St. Augustine, in a fine state of preservation, and in which divine service has never been interrupted, there is not a Cistercian church in the country that is not utterly ruinous and deserted.

The rules relating to the disposition of the various buildings could not be laid down with exact precision, on account of the peculiarities of site, &c.; but that there was a uniformity of observance in this respect is easily proved from the close similarity of the plans of all the early abbeys of the order. The buildings were arranged round a cloister court, and with very few exceptions the church stood on the north side. The form of the church was that of a Latin cross:— from the south arm or transept ran a range of buildings in a southerly direction, the first of which was the sacristy, next the chapter house, then a passage connecting the quadrangles, and lastly, extending beyond the line of the cloisters, the fratry or day-room of the monks. Along the south side of the court came first a staircase leading to the monks' dormitory, which ran over the whole of the last-mentioned apartments;

then came the kitchens, principal refectory, butteries, offices, &c. The western side was occupied by one long building, which has until recently been named the hospitium, or guest-house, and of which we shall have more to say hereafter. This is the normal type of the central block of a Cistercian monastery. The other buildings, including abbot's house, the gateways, &c., the relative positions of which could not be brought so distinctly under regulation, we shall leave at present, and consider the rules concerning the building of the conventual churches. The most important of these were ;—that they should all be dedicated to the Blessed Virgin—that they were to be built in the form of a cross—that they (as well as all other buildings) should be rigidly plain—that no lofty towers should be erected—that elaborate carvings or "representations of the human form" should be forbidden—as were also all features simply of an ornamental character, *e.g.*, pictures, stained glass, tesselated pavements, gold ornaments, coloured decorations, and the like. Thus, in their extreme simplicity, the early abbeys of the order depend for their effect upon the excellence of their proportions and the variety and purity of their details ; and for this reason they may be studied with the greatest advantage by the architect of the present day.

In reference to the rule concerning towers, wooden bell-turrets were permitted over the "crossing," and sometimes the four walls of the "crossing" were carried up one stage above the ridge of the nave and covered with a low pyramidal roof. Portions of these lanterns remain at Kirkstall, Calder, Buildwas, Melrose, &c. The towers of Fountains and Furness were late additions, at a time when the Cistercians had become less strict in their adherence to the original rule. In reference to the rule concerning carvings of the "human form," Mr. Sharpe says—"We accordingly find in none of the abbey

"churches of this order the representation of a human head "or figure carved in stone, whereas they abound in the con- "temporaneous buildings of the other orders. I do not "remember to have seen—and I have searched for it—a "single exception to this rule in the numerous abbey churches "of the Cistercians that I have visited in Europe, constructed "during the first two centuries of the existence of the order." This absence of carvings is sometimes strikingly contrasted with the richer treatment of the abbeys of other orders; take, for instance, as noticed by Mr. Sharpe, the Benedictine abbey of Whitby, and the Cistercian abbey of Rievaulx, within thirty miles of each other. In the former we find grotesque figures, heads, and the utmost profusion of carved ornament, and in the latter extreme simplicity in these respects.

It must be understood that these rules were carried out with the utmost rigour down to the end of the 13th century, not only in our own country but on the continent of Europe. After that time there grew up in the order a certain laxity in their practice; they employed a greater degree of ornament in their erections and insertions; and made many deviations from their rules, which further illustrate this degenerate tendency, and make it difficult to determine with certainty the exact significance of many features in their later structures.

It must also be borne in mind that the foundation stone of the Abbey of Whalley was not laid till A.D. 1296. The neighbouring Cistercian Abbey of Sawley had then been in existence about 150 years. The monastery was founded at Stanlaw in Cheshire in A.D. 1173; but the encroachments of the sea made a change of situation necessary. They had acquired considerable property in Lancashire, and in A.D. 1173, Henry de Lacy, Earl of Lincoln, granted to the monastery the advowson of Whalley; the translation was, however,

delayed for thirteen years; and such was the restless character of the monks, that a second translation was contemplated at the beginning of the 14th century to Toxteth. This, however, never took effect. The Abbey of Whalley was not completed till A.D. 1438 (a period of 142 years from its foundation), and before this time many of the departures from the original regulations had taken place; but we shall find that the more important features fully bear out the foregoing rules; and though we may also meet with much to illustrate the laxity of the order (which is not to be wondered at considering the lateness of the erection), yet a close study of its arrangements will be of advantage both to the architect and the antiquary.

We will now apply the rules before quoted to the site and conventual buildings.

The site of Whalley Abbey is in one sense eminently Cistercian in character, being situated just where the valley of the Calder contracts and presents some of its loveliest scenery. The abbey stands, as is usually the case, on the north bank of the river. Its situation is not now so secluded as that of some of the Cistercian abbeys; but at the time of its foundation very few houses would surround the spot where the Church of Whalley had existed, under one form or other, for more than six centuries.

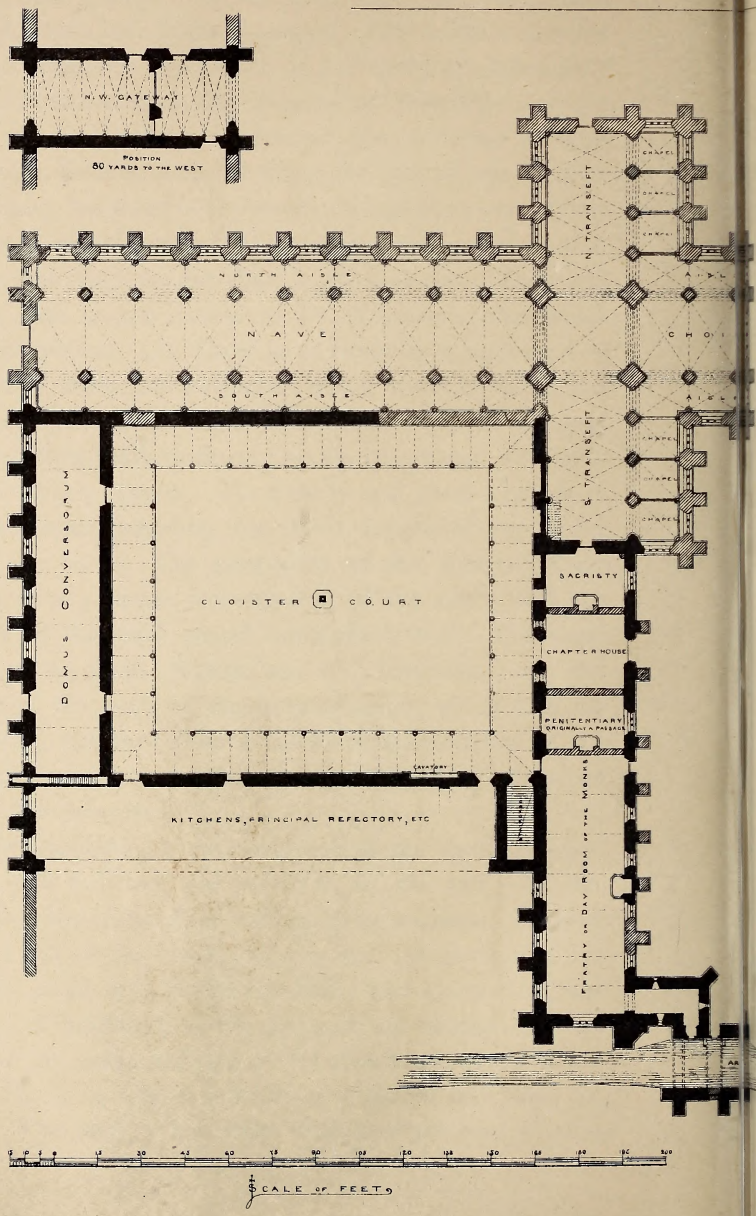
We will now turn to the plan of the abbey, prepared from recent measurements, and respecting which it will be necessary to explain that the parts in black indicate existing remains; the parts etched from right to left, portions destroyed; and the parts etched from left to right, recent additions. The last applying to portions of the abbot's house only.

Commencing with the church, which is of course the most important of all the conventual buildings, we find that it has almost entirely disappeared. There are a few fragments left,

however, and though they are only fragments, they throw great light upon its original condition. The width across the nave and aisles, and the length of the choir, are taken from Dr. Whitaker's plan in his *History of Whalley;* and the process by which these dimensions were obtained is there explained. Nothing remains above the ground to test these proportions; but there is no reason to doubt their correctness, except that in churches of this order, built at so late a date, the choir was much longer than is there shewn. There are, however, one or two points in Dr. Whitaker's plan which require alteration. (1) There is an irregular arrangement of nave, pillars, aisles, and buttresses, which would be impossible under merely constructional considerations; (2) to the east of the transepts, both north and south, two chapels are shewn of an inordinate length. We usually find *three* chapels in these situations extending the whole length of one of the bays of the choir. The peculiarity of this portion of the plan led to a personal investigation of the ruins, and the evidences of the third chapel were discovered. The jamb and sill of its south window are still remaining; and the closeness of the jamb to the internal angle, along with the confirmation obtained from plans of other churches of the order, will justify the contraction of its length as shewn on the plan now presented.

The pier-respond in the south wall of the south transept remains, and indicates the moulding of the rest. In this wall too is a low arched door leading to the sacristy. Nothing further is left of the church to the east. A portion of the wall of the south aisle is still standing; and where it adjoins the range of buildings to the west of the cloister court, a portion of the jamb and sill of the aisle window, and string course under it, is seen at a height of eighteen feet from the ground. The jamb of the aisle window of the west front is

PLAN OF WHALL



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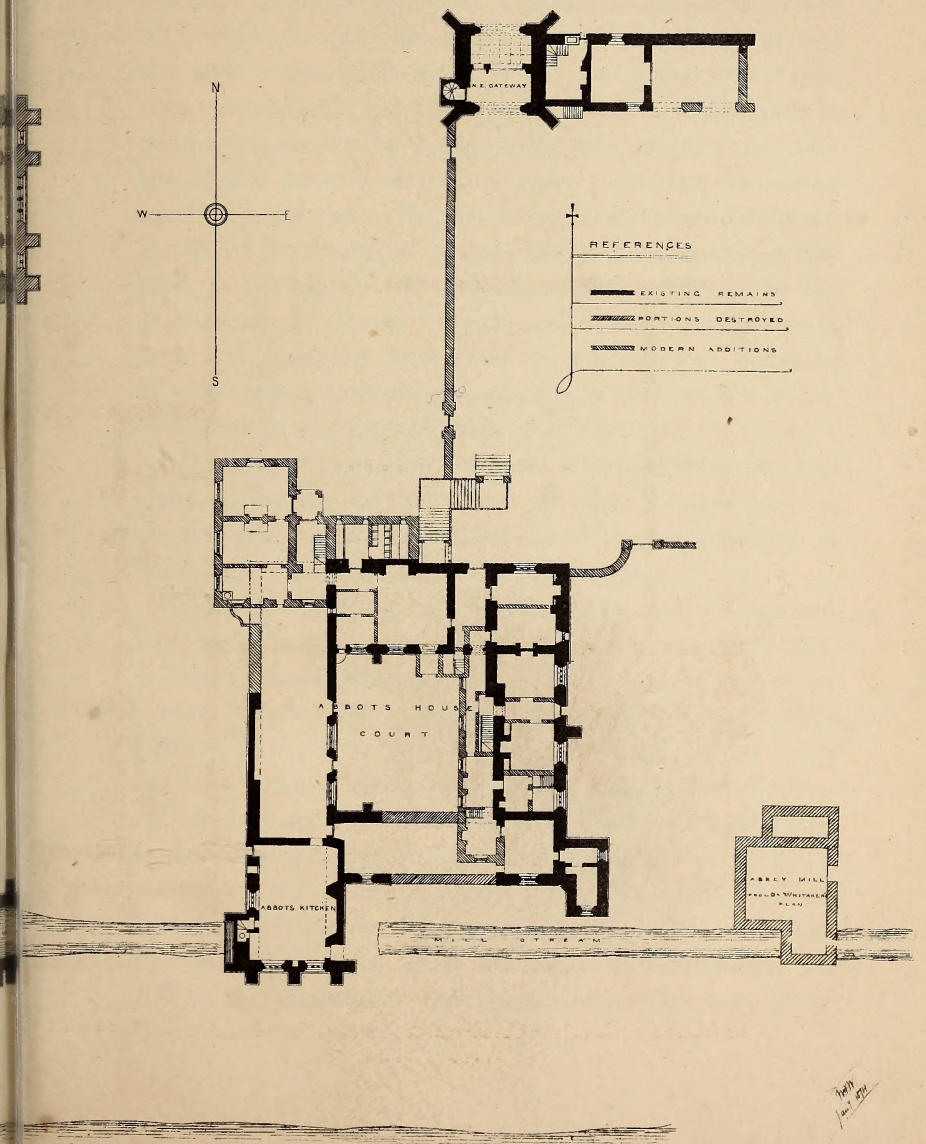

e Queen, 236, Holborn.

still in existence; it is composed of a succession of simple splays, and extends the whole width of the wall which is 5ft. 4in. thick above the base course. Adjoining this window is the stone corbel and moulded springer of the aisle vaulting. This corbel is at a height of twenty-four feet, which will also give the height of the nave piers; so that although we have but a few details now remaining of this once noble church, yet they teach us much. They shew in the western portion, by the exceeding plainness of the details, how at that time the severities of the Cistercian regulations were enforced; and in the eastern portions the more elaborate moulds of the transeptal chapels tell of the distinctions they made in the more sacred portions of their edifices. In the fragmentary mouldings of pier, and vaulting, and window jamb, and string, we have sufficient material, with reference to other existing portions of the abbey, to work out a tolerable restoration of the original fabric, and reproduce, on paper, a building, severe in outline, strikingly simple in its details, but grand in its very simplicity, and dignified in its repose;—presenting in its fine proportions one of the best examples of Cistercian architecture in the United Kingdom.

Taking the plan as laid down to represent the original building as nearly as possible, from the evidences remaining, we have in it a Cistercian church of the orthodox type:—its internal length being 255 feet; that is, one foot longer than Furness, thirty-eight feet longer than Kirkstall, twenty-seven feet longer than Tintern, forty-five feet longer than Netley; and its width across the transepts (about 142 feet) is exceeded by that of very few churches of the order in this country.

Next to the south wall of the south transept we find the sacristy, which was usually approached from the church;—the doorway still remains. It is lighted from the east, but the window is an insertion of Late Perpendicular character. Then

follows the chapter house. Next to the church, this building was most highly decorated; and in this instance we find the usual arrangement of a central doorway, flanked by two smaller arched openings, the sills of which are some two or three feet from the ground. These openings were never glazed, and are a standing proof of the austerity of the Cistercians, who were thus unprotected, in their deliberations, from the severities of our climate. This western triple-arcade is exceedingly beautiful, the moulds of the central doorway being enriched by numerous carved pattera of a very spirited character, the hood-moulds being foliated. The side arches contain tracery of an Early Perpendicular character, and are deeply moulded, having treble shafts. The eastern doorway, which is over seven feet wide, has also a very effective arch mould. On either side of this doorway there is slight evidence (in the discontinuation of the base mould) of the existence of other buildings to the east, but of this there is no certainty. Next the chapter house is an apartment that, from the large size of its arched doorway (6ft. 3in. wide), must originally have been the usual passage connecting the quadrangles. The east window is evidently an insertion.

Other apartments are sometimes found in this range; one being a penitentiary, another a locutorium, or parlour for consultations; so that this room may at one time have been assigned to either of these uses, probably the latter. The next is a long apartment extending far south of the cloister court, called the *fratry*, or day-room, of the monks;—it invariably occupies this position. At its north end are two doorways, and it is not at all improbable that the one on the east side has been removed from the before-mentioned passage; in fact, the passage door and the fratry window have changed places, thus creating an additional room in the east walk of the

cloister, the communication from the outer quadrangle now being through the north end of the fratry. It appears that the south end of this room was in some abbeys exposed to the outer air, the openings for light being unglazed. There is no indication of this in the present instance; on the contrary, we have the evidence of the relaxed discipline in the fire-place, a portion of which is still to be seen in the east wall, and the flues from two of the other rooms may also be seen in further illustration. In this room the holes for the floor beams of the upper storey are clearly visible; also the stone corbels under beam ends, and other corbels, five feet lower, from which doubtless sprang the wooden curved brackets to support the floor, which would be about fifteen feet above that of the fratry. Light is obtained at the sides, from segmental-headed windows of two lights, containing simple tracery of Transitional Decorated character. The south window, which had three lights, was of a more elaborate design, and is restored in the diagram shewing the general view of the abbey. An idea of the external character of the buildings last described may be obtained from the views of the chapter house, fratry, &c., which form a portion of a series of sketches, published in 1870. From the south-east corner of the fratry a passage runs out to the mill stream, originally terminating in the "necessaria" of this portion of the establishment.

Taking the remains on the south walk of the cloister, we find first the staircase, so usual in this position. Access is obtained through a moulded archway, springing from clustered shafts. This was the means of approach to the monks' dormitory, which ran over the entire length of the buildings last mentioned, with the exception of a portion reserved for the scriptorium, which was generally over the chapter house. Here, however, we find a separate room connected with the

dormitory by a passage to the S.E., corresponding to that on the ground plan, and it has been thought that this would be the scriptorium; but the smallness of the windows throws discredit upon this idea, and since the building is unusual, its exact purpose will probably remain doubtful for some time. It may possibly have been the infirmary. It has a fire-place in the east wall, and large openings are found, which, from certain indications, were doubtless made for the reception of modern windows. This room is directly over the mill stream, and its east and west walls are supported upon bold pointed arches in one span. It is very probable that a flight of steps would connect the dormitory with the south transept of the church, a very usual and necessary arrangement for nocturnal services, but this portion of the building has been destroyed.

Continuing our investigations on the south walk we find, next the staircase, a door leading to what is now the kitchen garden. This was the site of the kitchens, principal refectory, butteries, &c., which generally occurred in the order named; and in almost every case the axis of the principal refectory was north and south; but from the position of the doorways alone it is pretty evident that in this case it ran east and west. Very little can be gathered from the existing remains as to the exact disposition of these rooms. There are indications of a division wall about sixteen feet from the staircase, and the north wall is still perfect, with its doorways, to the height of ten or twelve feet. This range was not erected till the end of the 14th century, and at that time many of the original regulations were disregarded. A portion of the south wall of this block remains at each end, as shewn on the plan; it does not follow of necessity that they were connected in a straight line as indicated, but on making special inquiries from an old servant, long connected with the abbey, he told me

that he dug up almost the entire length of the wall, as it is now shewn; and he had good reason to remember it, being, as he said, "a varry tough job." It is much to be regretted that so little is to be seen of the principal refectory, a building next in importance to the chapter house, and usually of a more ornate character than its surroundings. In the north wall of this refectory and on the cloister side near the staircase, is the lavatory, covered with a low segmental arch. This was erroneously described by Dr. Whitaker as "a tomb;" but it is a very common feature in this wall. The leaden water pipe was in its place up to a very recent date.

It is certain that some portion, at least, of this range of building had a second storey, and, though it is against the rule, it is probable that it ran the entire length. Its uses, if it had any beyond that of an additional dormitory, (access to which would be easily obtained from the staircase before mentioned,) would be matter of mere speculation.

We now come to a very important building, occupying the whole of the western side of the cloisters. This has been generally called the hospitium, or guest house, for the reception and entertainment of travellers, and is thus named on Mr. Sharpe's "model plan," as given in his paper two years ago. Various uses have been assigned to it by different writers, however, Mr. Sharpe in a recent communication, after mentioning the discovery of documentary evidence of a "very new and interesting nature;" states that he now believes the building to be the "*domus conversorum*," a name frequently occurring in Cistercian chronicles. We shall look forward with interest to the publication of the evidence on this point, which he has in preparation, as it does seem very unlikely that the visitors would be allowed to overlook the very heart of the monastery from their dormitory windows.*

* Since this paper was read, Mr. Sharpe has published his views on the

This building is in two stories throughout, and is lighted by two-light windows, with segmental heads, having cuspated openings, and rather later in style than the windows of the fratry. The doorways occur as shewn on the plan, and one of those to the east has a very effective and elegant arch-mould.

We must not omit to mention the existence of a curious staircase in the south wall of this building, terminating at the top in a narrow window. Some writers have thought this to be a cell, and, considering that its length is about thirty feet, its width about three feet, and that it contains about twenty-four steps, the idea is curious. It is not at all improbable, considering the facts just stated, that it was used as one means of communication to the dormitory above;—indeed, at present, it is the only visible means of access to the whole of the higher storey at the west end of the cloister.

The cloister walk here, as in most other cases, would probably be covered with a simple roof, supported on *wooden* posts, and not in the style of the elaborate stone erections, some of which are most exquisitely beautiful, as at the Bene-

question in a paper entitled "The *Domus Conversorum*, containing the Day "Room and Dormitory of the Conversi of a Cistercian Monastery." Mr. Sharpe, in reference to the title "Hospitium," given in the model plan attached to the paper read before the "Royal Institute of British Architects" in 1871, says—"Accumulated documentary evidence which has fallen into my hands since then, "has satisfied me that the designation is an erroneous one, and that this build-"ing was really constructed for a use that has more than once been applied "to it." There has been no positive proof, however, and it has been by a diligent research, extending over two years, that Mr. Sharpe has elicited the information which caused him to substitute the title above indicated. The evidences are chiefly derived from the *Libellus Antiquarum Definitionem Ordinis Cisterciensis* of 1289, and in a second edition of this in 1316, and a full account of the Rule of the Converts at Clairvaux, published by Martenus, in his *Thesaurus Novus Anecdotorum*, in 1647. We can only add here that the *Conversi* were a distinct class of inmates, subordinate to the Monks, and performed "all the agrarian, artificers, and menial work incidental to the "cultivation of the land, and the clothing and daily service of the whole "community."

For further information on this interesting subject we refer the reader to the paper itself, the arguments of which are most conclusive.

dictine churches of Worcester, Canterbury, Gloucester, and those of the secular canons at Lincoln and Salisbury. The stone corbels formerly supporting the rafters are still to be seen in the walls at regular intervals of seven feet. To the Cistercian practice of construction in wood, the absence of this interesting feature in their monastic architecture is due.

We have now made the circuit of the buildings forming the central block of the abbey, and, taking into consideration the lateness of its erection, the various buildings illustrate, in a remarkable manner, the uniformities of the Cistercian plan and the various peculiarities of their architectural regulations.

Dr. Whitaker, in his *History of Whalley*, has not assigned the names to the whole of the conventual buildings on his plan, for at that time little was known of these special characteristics of Cistercian architecture ; but in the fourth edition of that work, now being published, these deficiencies have been supplied : a plan has been substituted similar to the one here exhibited. The letterpress has also been revised in accordance with these recent discoveries ; and Mr. Nichols, whose recent death is a source of general regret, has taken an especial interest in this important portion of the work.

We will now briefly notice the block next in importance on the plan, situated about forty-four yards to the east of the chapter house. This was the abbot's house, and of it we need say very little. Its apartments were arranged round a small quadrangle, about fifty-two feet square, but they have been so cut up and sub-divided that it is now difficult to trace the original plan. The kitchen is almost entire, and contains three arched fire-places, two of them being about fourteen feet six inches, and the other about eight feet wide, speaking eloquently of the bounteous hospitality of the abbots of Whalley. Above this portion of the house ran the long

gallery, said to have been 150 feet long. The abbot's private chapel, lighted by a most elegantly traceried window of Early Perpendicular character, stands further to the east, and is situated in the second storey. The whole group, as now remaining, presents a most picturesque appearance, owing to its many mullioned windows;—those to the long gallery being especially fine. The abbey mill stood still further to the east. It is now destroyed, but its position is taken from Dr. Whitaker's plan.

It remains to notice the gateways, of which there were two. That to the north-west, which is eighty yards further to the west than shewn on the plan, was first erected. It is of noble proportions, and is the more imposing in all respects. It consists of two storeys, the second one being supported on stone vaulting. Its detail is very simply treated, springing from wall corbels, but it has an exceedingly fine effect. The higher storey was well lighted by seven three-light windows, containing the elegant flowing tracery peculiar to the Decorated Period of about A.D. 1350. The foundations of extensive buildings have been traced to the north and south, but especially on the former side, access being obtained by doorways still remaining. There is also an arched doorway to the higher storey on the north side. Corbels occur in the side walls at regular intervals, apparently for the support of roof timbers. It has been difficult to assign a use for these buildings, beyond that of porter's lodge; but assigning the long building on the west of the cloister court to the "*domus conversorum*," it is not at all improbable that, at Whalley, the hospitium or guest house would be connected with this western gateway; the higher storey (its internal dimensions being 65ft. × 26ft.), being used as the guest's dormitory.

The other gateway, much further to the east, and approached through an avenue of fine lime trees, is of much later date.

A Restoration of Whalley Abbey.

It also has a second storey, gained by means of a spiral staircase. The embattled parapet is almost in its original condition; and as a whole, this is perhaps one of the most perfect, being certainly one of the latest, erections of the abbey. This latter fact will explain the appearance of a niche containing the figure of some royal personage over the arched entrance.

The view representing a restoration of the abbey as seen from the south-east, has been produced from measured drawings of the existing portions and the best authorities concerning what is lacking, namely, the more perfect abbeys of the order. I have chosen to represent the orthodox central tower, rather than adopt the idea of a western tower, of the existence of which there is no positive proof.

Ornamental fragments of this once magnificent monastic pile are scattered about on all sides. Some of its traceried windows are to be found at Langho Church and Samlesbury Hall, and numerous houses in the immediate district are almost entirely constructed from its ruins. Other portions have been applied to worse purposes; and it is a matter of astonishment that so little of the richer tracery, ornamental carving, and the various ancient art-work, introduced at the later periods of its erection, is to be found. We see specimens of stall carving in the venerable parish church; stained glass at Holme, and elsewhere; heraldic carvings at Downham Hall; and various oak carvings, ancient tiles, and smaller shields of arms built into the houses at Whalley and the neighbourhood); but much more of this ornamental work must be thrown together somewhere within or near the abbey grounds. I can only, in conclusion, echo the wish of the present vicar, the Rev. R. N. Whitaker, M.A., expressed in a lecture delivered in 1869, that excavations might be made, not only to test certain statements that much of the ornamental

work is buried in a sort of rampart in the abbey grounds, called the "terrace;" but to trace out the eastern portions of the conventual church, and various other doubtful points of the ichnography of the abbey, especially about the refectory, western gateway, and elsewhere.

Under the conviction that this abbey, formerly one of the most important of the Cistercian houses in the country, has not received its due share of attention; I shall feel amply repaid for the preparation of this paper, if I can enlist the sympathy of antiquaries, and excite such an interest in this "*Locus Benedictus*," as shall lead to the unravelling of some of the mysteries which still shroud its remains. It must not be forgotten that its situation is eminently Cistercian in character, and that the beauties of its surrounding scenery will contribute in no small degree to the enjoyment of a few days' exploration amongst the antiquities of Whalley.

PROCEEDINGS,

TWENTY-SIXTH SESSION, 1873-74.

ANNUAL GENERAL MEETING,

Royal Institution, Colquitt Street, Liverpool, October 20th, 1873.

REV. A. HUME, D.C.L., PRESIDENT, IN THE CHAIR.

REPORT.

In presenting their Report, at the close of the Twenty-fifth Session, the Council have the pleasure of stating that during the year the business of the Society has steadily progressed. They have been anxious to extend its operations over as much as possible of the area embraced in its title; and they have borne in mind that there is a danger of an opposite character, viz.,—ignoring local limits and becoming too discursive.

Among the papers which are of a strictly local character will be found the following.—Mr. Earwaker, who is preparing a large illustrated volume on the Antiquities of East Cheshire, contributed a paper on the same general subject; and Mr. Beamont, of Warrington, read a second paper on a topic of much interest, the Fee of Makerfield. Dr. Kerr has extended his researches respecting the Primitive Iron Furnaces in Lancashire; and Mr. Abram, a new member of the Society, has contributed, in two parts, an exhaustive history of two places in the county. Besides his annual contribution, entitled Archæology in the Mersey District, Mr. H. Ecroyd Smith has given a curious account of old Moor Street in this town. Other papers referring to special localities are Mr. Clarke's on such Antiquities illustrative of Essex as exist in the Mayer collection of this town; and Mr. Smith's Notes on the Vale of Clwyd. Mr. Boult's researches respecting the Angles, Jutes, Saxons, &c., as well as Mr. Comber's on the Distribution of British Plants, are more comprehensive in their character.

These papers will appear in the annual volume now in the press, some of them with appropriate illustrations; and it is expected it will be ready for distribution early in November.

The index of Authors, Papers, and Subjects mentioned in the last Report has since been completed, and is now in the printer's hands.

The officers entrusted with the Society's property, report that it is all in a satisfactory condition.

The Librarian has laid on the table a complete MS. catalogue, ready for being printed; and the Council believe that the cost of arranging the books and preparing it was well expended. The Curator has, in like manner, arranged and catalogued the illustrative objects in his department: and to him is entrusted for the present the miscellaneous property of the Society, including volumes of Transactions in stock, technically in charge of the Assistant Secretary.

The Catalogue and Index will, when printed, form a small supplementary volume of general interest.

The financial condition of the Society has again been carefully revised, and the Council recommend that a special application be made to members who are in arrear of their subscriptions, to forward remittances to the Treasurer. The debtors to the Society are more than twice as numerous among the distant members as among the members whom the collector can reach; and although the payments are only half as great, they constitute the principal part of the arrears.

The excursion of the members and their friends took place on the 24th of June to Congleton; and the Council desire especially to express their thanks to the worthy Mayor of that town, for the very hospitable reception which was given to them.

The Rev. Dr. Hume has again expressed an earnest wish to retire from the office of President, which he has now filled for four sessions; but he has assented to the wishes of the Council that he should hold the office till they have had time to select and recommend a suitable successor. They desire to express their sense of the obligations of the Society to the Rev. Dr. Hume, who (always an enthusiastic worker on its behalf) has during the four years of his office as President manifested more than ordinary zeal to maintain and further the Society's interests, and to extend its usefulness. They also feel convinced that his efforts have tended in a marked degree to establish the Society on a sounder footing, and to inspire its members with renewed confidence in its future well-being.

The Report having been unanimously adopted, the election of the Council and Officers was proceeded with, and the result announced as stated on page iv.

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* *November 21st*, 1873.

Rev. Dr. Hume, President, in the Chair.

The following Paper was read:—

Traces of Pre-Roman Civilisation in Britain,† *by Joseph Boult, F.R.I.B.A.*

* This meeting should have been held on Thursday, November 13th; but in consequence of a banquet being given to Joseph Mayer, Esq., F.S.A., on that day, it was postponed to the above date.

† Transactions, page 113.

November 27th, 1873.

THOMAS GIBSON, Esq., in the Chair.

The following objects were exhibited :—

By J. T. Towson, F.R.G.S.

A copy of a sermon preached on the occasion of the death of Queen Anne, in the parish church of St. Peter, Liverpool, by the Rev. Henry Richmond, rector of Liverpool, on Sunday, 5th September, 1714.

A MS. written in Greek on vellum, found in 1864 by a Greek merchant in an old monastery at Xante.

By G. H. Float, Esq.

A jewelled snuff box, having on its lid a beautifully executed portrait, in enamel, of a lady of the time of Charles II, and on the bottom of the box a representation of Oliver Cromwell gazing on the dead body of Charles I.

Mr. Henry Ecroyd Smith announced the discovery, during the reparation of St. Michael's Church Huyton, of traces of an early and hitherto unknown Anglo-Saxon foundation, consisting of the capital of a small column and the bowl of a font, both carved with human heads, &c. ; and he announced that the vicar, the Rev. Oswald Penrhyn, would have pleasure in showing these relics to any gentlemen interested in ecclesiastical architecture.

The following Paper was read :—

THE MYTHOLOGY OF AEROSTATION AND ITS SUBSEQUENT APPLICATION TO BALLOONING, ESPECIALLY AS CONNECTED WITH THE HISTORY OF LIVERPOOL,* *by J. T. Towson, F.R.A.S.*

December 11th, 1873.

THOMAS GIBSON, Esq., in the Chair.

The following gentlemen were elected Ordinary Members of the Society :—

James Pearson, Esq., Congleton.
T. A. Daniel, Esq,, Congleton.
Andreas E. Cockayne, Esq., Congleton.
James Dixon, Esq., Ormskirk.
J. B. Earwaker, B.A., F.S.A., Oxford.
W. A. Waddington, Esq., Piccadilly Road, Burnley.

The following objects were exhibited :—

The Rev. Dr. Hume exhibited a large and interesting book in two volumes, prepared by himself. In 1869 he was one of the secretaries of the Church Congress held in Liverpool, and editor of the Report; and in the exercise of the latter duty all the manuscripts and corrected proof

* Transactions, page 75.

sheets passed through his hands. These were carefully preserved, and eventually laid down upon strong cartridge paper, with a double margin of red, arranged so that at each opening the manuscript stands on the right side, and the portion of corrected proof corresponding to it on the left. Speeches are given, as well as formal papers, when the authors furnished manuscript. Dr. Hume has also procured numerous *cartes-de-visite* of the writers, which are laid down, accompanied by biographical sketches from the peerage books, "Men of the Time," the Clerical Directory, &c. There are also several large photographs of public buildings, as St. George's Hall, the Town Hall, St. Michael's Church, &c. The binding, which is very elegant, and has elicited high commendations, was executed by Mr. H. Shimmin. Each leaf is laid down on cloth, the back is of the best morocco, and the sides are of the oak of Chester Cathedral, kindly presented by Dean Howson. On the upper side of each is inlaid the seal of the Church Congress; and on the lower side the Liverpool arms. The lining of the covers was specially prepared by Mr. J. E. Worrall, of Castle Street; it represents the seal of the Congress damasked in lozenges on dark and light alternately. The thirty-two bosses of the covers were specially prepared in London. The whole is enclosed in a beautiful coffer, like a plate-chest, which, with the cabinet work, was executed by Mr. Patterson, of Everton. The sermon of the Archbishop of York, preached at Chester on the Saturday after the Congress, is included.

By F. J. Jeffery, Esq.

Two photographs of a Greek, now exhibiting himself privately in Germany. He was taken prisoner with others in the war in Cochin China, and sentenced to death, or, as an alternative, to be tattooed all over. He chose the latter; and having survived the operation, his skin presents the appearance of a tight-fitting costume, elaborately figured with dragons and other grotesque animals, the colours being blue and red. Two of his companions, who were tattooed in a similar manner, died under the operation.

By Mr. J. Dixon, in illustration of his Paper.

A drawing of the Derby Chapel, Ormskirk Church.

The following Paper was read by Dr. Buxton, in the absence of the Author:—

ORMSKIRK CHURCH AND DERBY CHAPEL NOTES: BEING EXTRACTS FROM THE REGISTERS AT ORMSKIRK CHURCH OF ALL THE RECORDED INTERMENTS WHICH HAVE TAKEN PLACE IN THE DERBY CHAPEL; WITH ADDENDA OF MISCELLANEOUS GLEANINGS FROM THE SAME SOURCE,* *by James Dixon, Esq.*

January 8th, 1874.

T. T. WILKINSON, F.R.A.S., in the Chair.

The following Gentlemen were elected Ordinary Members of the Society:—

* Transactions, page 1.

Mr. Alfred Hardwick, Chatham Street.
Rev. John Smith Doxey, Wood Top, Habergham Eaves, near Burnley.

The following objects were exhibited :—

By Mr. George Thomas.
A volume published in the reign of Charles II, containing a great variety of information respecting the manners and customs and notable men of that period.

By the Assistant Secretary.
An illustrated catalogue of the works of art exhibited by Messrs. Elkington and Co. at the Vienna Exhibition, the volume being remarkable as an example of the state of perfection to which the art of printing has been carried to this time.

By T. T. Wilkinson, F.R.A.S., in illustration of the Paper of the evening.
A ground plan of Whalley Abbey, and a drawing of its elevation as it may be supposed to have stood originally.

The following Paper was read :—

On Cistercian Architecture, as illustrated by the remains of Whalley Abbey,* *by W. A. Waddington, Esq.*

January 22nd, 1874.

Thomas Gibson, Esq., in the Chair.

The following objects were exhibited :—

A portion of the ordnance survey of Wales on the scale of 25½ inches to the mile; the trees, houses, fields, &c., being clearly delineated. With a book of reference to the plan.

[Referring to this plan, it was resolved, on the motion of Mr. Boult, to suggest to Sir Henry James that in future books of reference to the survey, the names of the various fields should be given, in addition to the numbers.]

By Mr George Thomas.
1. A volume entitled "Naturall Philosophie Reformed by Divine Light; or, a Synopsis of Physick, by J. A. Coménius, with a brief Appendix touching the diseases of the body, mind, and soul, with their general remedies. London: Printed by Robert and William Leybourn for Thomas Pierrepoint at the Sun in Paul's Churchyard, 1651."
2. A volume entitled "The Diurnall Occurrences or Daly Proceedings of Both Houses in this Great and Happy Parliament from the Third of November 1640 to the Third of November 1641."

* Transactions, page 145.

Mr. Edward A. Heffer exhibited his designs for the proposed improvement and widening of the White Rock Parade at Hastings, for which he was awarded the prize of one hundred guineas, offered by the Hastings Council for the best design. Sixteen other designs were sent in. The scheme includes the construction of an aquarium, with twenty-two tanks arranged along both sides of a corridor, 20 feet in width and 190 feet long, some of the tanks being very large. A central court with ornamented coupled supports of iron, contains ten table tanks suited for the smaller aquatic animals. A conservatory, 88 feet by 65 feet, with elegant cast iron columns and arched supports, terminates the vista. In this portion, a large fernery with natural rockwork is a leading feature—seal ponds, sculpture, &c., adding to the effect. Ample room is provided for orchestral concerts. The entrance to the aquarium is at the western end, near the Peerless Pier; the latter a fine structure recently completed. For the convenience of invalids and others, it is approached by a gentle incline. The entrance hall, reading room, and dining hall are spacious and handsome apartments. In convenient situations are cloak rooms, telegraph office, waiting rooms, lavatories, kitchen offices, &c. The baths, situated at the eastern end, near the Carlisle Parade, are arranged in a very complete manner. Besides large plunge baths, and private baths both for gentlemen and ladies, a plunge bath for children is introduced, with a capacity equal to 28 feet by 20 feet, fitted up with every convenience for the young. The style of architecture is Italian, carefully treated, and free from excess of ornamental carvings, &c.

The following Paper was read:—

On the Dispersion of British Plants,* *by Thomas Comber, Esq.*

February 5th, 1874.

J. R. Hughes, Esq., in the Chair.

The following objects were exhibited:—

By Mr. J. T. Towson.

A number of Japanese castings in bronze, from the religious temples of Japan.

By Mr. Thomas Gibson, Jun.

1. A Burmese rifle mounted in silver, of very curious and beautiful workmanship.
2. A portion of a musket inlaid with ivory, picked up near Pekin after one of the engagements between the English and the Chinese.

The following Paper was read:—

On the recent Social, Religious, and Political Revolution in Japan, *by J. T. Towson, F.R.G.S.*

* Transactions, page 47.

February 19*th*, 1874.

J. H. Genn, Esq., in the Chair.

The following objects were exhibited :—

By Jos. Boult, F.R.I.B.A., in illustration of his Paper :—

1. Great Britain's Coasting Pilot, by Capt. G. Collins, containing the earliest chart of Liverpool Bay, 1778.
2. Fearon and Eyes' Chart, second and third editions, 1775 and 1776.
3. Captain Denham's Chart of Liverpool Bay, 1833.
4. Captain Denham's Mersey and Dee Navigation.
5. Description of the Astragallers of Tin found at Falmouth, with illustrations, by Major-Gen. Sir Henry James, R.E.

The following Paper was read :—

On the Deterioration of the River Mersey,* *by Joseph Boult, F.R.I.B.A.*

March 5th, 1874.

John G. Jacob, Esq., in the Chair.

The following objects were exhibited :—

By Mr. H. Ecroyd Smith.

A curious quart tankard of Liverpool earthenware of 1805, displaying a portrait of Lord Nelson, map of Cadiz Bay, plan of the action off Cape Trafalgar, and list of the British ships engaged, with their ordnance. The portrait is no recognised likeness of the hero, but is interesting as perhaps the best example of the "Potters' Portrait," which was variously reproduced upon ceramic wares for many years after the battle.

By Messrs. J. H. Gibson, Chas. Potter, and Mr. Holt, of Manchester.

Other examples of this portrait on jugs of Liverpool manufacture, 1806-10.

By Mr. Chas. Potter.

Very fine animal remains from the Meols sea-beach ; viz.,—skull with tusks of the *Sus Scrofa* (wild boar), and antler of the *Cervus Elaphus* (red deer).

By the Rev. O. Penrhyn.

Photographs of early font and capital, recently found in Huyton Church.

The following Paper was read :—

Archæology in the Mersey District, 1873, and Liverpool Notabilia, *by Mr. H. Ecroyd Smith*†.

* Transactions, page 29. † *Ibid*, page 83

March 19th, 1874.

J. R. Hughes, Esq., in the Chair.

The following objects were exhibited :—

By the Chairman.

A rare collection of ancient Roman coins, collected by the late Dr. Ackerley, and now in the possession of his son, Mr. W. B. Ackerley. The greater portion were found in some old Roman baths at the Caldos de Vizella, Portugal, incidentally discovered by Gen. Trent, an officer on the staff of the Duke of Wellington.

The following Paper was read :—

Incidents of an Eventful Year, *by James Stonehouse.*

April 2nd, 1874.

J. T. Towson, Esq., F.R.G.S., in the Chair.

The following Paper was read :—

Ormskirk Church Briefs : being a further Addendum of Extracts from the unpublished list of General Collections in Ormskirk Church,* *by James Dixon, Esq.*

April 18th, 1874.

J. T. Towson, Esq , F.R.G.S., in the Chair.

The following objects were exhibited :—

By Messrs. Smith and Gardner.

A number of metal mirrors from the religious temples of Japan, many of them being embellished with flowers, fruits, and birds in relief. A tortoise in the centre of the back is very common.

By Mr. E. A. Heffer.

A characteristic letter of the late Charles Dickens, addressed to Miss Romer, the actress. Also a letter written by Mr. Macready, the actor.

By Mr. Richards.

A volume entitled An Exhortation upon the Third Chapter of the Prophecie of Amos, 1629.

The following Paper was read :—

On the Zingari or Gypsies, with a Theory as to their Origin, *by B. L. Benas, Esq.*

* Transactions, page 1, &c.

DONATIONS TO THE LIBRARY.

1.—England.

Birkenhead Literary and Scientific Society;—Report and Proceedings, Session xvi, 1872-73.

Cornwall, Royal Institution of;—Journal, vol. xiv.

Royal Polytechnic Society of;—Annual Report, No. 40, 1872.

Huddersfield. Yorkshire Archæological and Topographical Society;—Journal, parts 9, 10; 1873.

Lincoln. Reports and Papers read at the meetings of the Architectural Societies of the Diocese of Lincoln, the County of York, the Archdeaconry of Northampton, the County of Bedford, the Diocese of Worcester, the County of Leicester, and the Town of Sheffield, 1872.

Liverpool. Architectural and Archæological Society;—Proceedings, Session xxv, 1873.

Chemists' Association;—Report and Transactions of, 1871-72.

Institute;—Forty-eighth Annual Report of the Directors, 1873.

Literary and Philosophical Society;—Proceedings of, vol. xxvi, 1871-72.

Naturalists' Field Club;—Annual Report, 1872-73.

Numismatic Society;—Journal, part 2, July, 1873.

Philomathic Society;—Proceedings, 48th Session, vol. xviii, 1872-73.

Polytechnic Society;—Proceedings for November and December, 1873. Annual Report and List of Members, 1873.

London. Archæological Association;—Journal of, Nos. 118, 119; 1873.

Royal Archæological Institute;—Journal, Nos. 115, 116.

Royal Asiatic Society;—Journal of, part 2, Vol. vi.

Royal Geographical Society;—Journal, Vols. xxxviii, xlii. Proceedings, Vol. xvi, part 5; Vol. xvii, parts 1—5; Vol. xviii, part 1.

Royal Society;—Proceedings, Nos. 142—148 (vol. xxi); 149, 150 (vol. xxii.)

Society of Antiquaries;—Proceedings, Vol. ix, part 1. Archæologia, xliii, pt. 2, xliv, pt. 1.

London. Society of Arts;—Journal, Nos. 1059—1116.
Statistical Society;—Journal, parts 1—4 (March—Dec. 1873), part 1 (April, 1874.)
Manchester Literary and Philosophical Society;—Transactions, vol. xii, part 1. Proceedings, Nov. 4th and Dec. 2nd, 1873,—Feb. 10th and 24th, 1874.
Newcastle-on-Tyne, Society of Antiquaries of, *Lepidarium Septentrional;* or description of the Monuments of Roman Rule, part 4.
York. Yorkshire Archæological and Topographical Society;—Journal, parts 9, 10.
Associated Architectural Societies of, &c. (*See Lincoln.*)

2.—Scotland.

Glasgow Philosophical Society;—Proceedings, vol. viii, part 2.
Royal Society of Edinburgh;—Transactions, Vol. xxvi, part 4.
Proceedings, Vol. vii.
Society of Antiquaries of Scotland, vol. v, parts 5—8; vol. vi,

3.—Ireland.

Royal Geological Society of;—Proceedings, vol. viii, parts 2 and 3, New Series, vol iii, part 3.
Royal Historical and Archæological Association of;—Quarterly Journal, October, 1873.

4.—France.

Société des Antiquaires de l'Oûest;—Bulletins, parts 3 and 4, 1872.
Société des Antiquaires du Nord;—Memoires, New Series, 1872.

5.—America.

Philadelphia. Annual Report of the Board of Education, for the year ending Dec. 31st, 1872.
Salem, Mass. Account of first Centenary of the North Church, 1873.
Washington. Smithsonian Institution;—Annual Report of the Board of Regents of, 1871.

SESSION XXIV, 1871-72.

HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE, *in Account with* JOHN G. JACOB, *Treasurer.*

RECEIPTS.

	£	s.	d.
I.—NON-SESSIONAL.			
Life Compositions £31 10 0			
Arrears collected 64 1 0			
	95	11	0
II.—SESSIONAL.			
Subscriptions (Session xxiv)	103	19	0
III.—GENERAL.			
Volumes sold £6 13 1			
Diplomas sold..... 0 10 6			
	7	3	7
Total Receipts	£206	13	7

[☞ This Balance Sheet should have been inserted in Volume xxv, p. 286; but by some oversight, the one printed there is that of the previous Session, which had already appeared, Volume xxiv, p. 184.—EDITR.]

E.O.E.

PAYMENTS.

	£	s.	d.
I.—BALANCE due Treas. (Oct. 18, 1871)	11	11	7
II.—THE VOLUMES.			
Vol. xxiii.			
Illustrations £3 10 0			
Vol. xxiv.			
Printing £48 12 9			
Binding 10 0 0			
Illustrations 6 16 0			
Delivery (part) .. 1 18 6			
67 7 3			
	70	17	3
III.—SESSIONAL EXPENSES.			
Rent, Royal Institution.... 10 10 0			
Salary, Assistant Secretary 25 0 0			
Refreshments at Meetings 13 7 10			
Attendance 3 0 0			
Stationery, various..... 3 15 7			
Circulars for Meetings 14 0 6			
Addressing Wrappers 0 12 6			
Insurance 0 16 0			
Collector's Commission .. 3 17 0			
	74	19	5
IV.—PROPERTY.			
Repairing Museum Cases.. 1 17 6			
Blocks for ditto 2 10 8			
Cases from Tennant 1 4 6			
Making Press at Roy. Inst.. 4 18 0			
Mr. Ecroyd Smith, on acct. for Catalogue 10 0 0			
Receipt Books for Library. 0 15 6			
Packing Books (Stock) 0 12 6			
	21	18	8
V.—MISCELLANEOUS.			
Forms for Announcements 1 10 0			
Headed Note Paper 2 17 6			
Prospectus, & sending out 5 15 0			
Petty Expenses (Ass. Sec.) 5 9 2			
	15	11	8
Total Expenditure	194	18	7
Balance in hand.....	11	15	0
	£206	13	7

(Signed) F. J. BAILEY, J. R. HUGHES, } *Auditors.*

SESSION XXV, 1872-73.

HISTORIC SOCIETY OF LANCASHIRE AND CHESHIRE, *in Account with* JOHN G. JACOB, *Treasurer.*

RECEIPTS.

	£	s.	d.
I.—BALANCE in hand (Oct. 18, 1872) ..	11	15	0
II.—NON-SESSIONAL.			
Life Composition £5 5 0			
Arrears collected..... 34 2 6			
	39	7	6
III.—SESSIONAL.			
Subscriptions (Session xxv).....	107	12	6
IV.—GENERAL.			
Volumes sold	6	13	6
Total Receipts	165	8	6
Balance due Treasurer	14	5	2
	£179	13	8

E.O.E.

PAYMENTS.

	£	s.	d.
I.—THE VOLUMES.			
Vol. xxiv.			
Illustrations	6	4	0
Vol. xxv.			
Printing £62 17 9			
Illustrations 9 14 0			
Binding 10 0 0			
Delivery 6 15 6			
89 7 3			
	95	11	3
II.—SESSIONAL EXPENSES.			
Rent, Royal Institution .. 10 10 0			
Salary, Assistant Sec. 25 0 0			
Refreshments at Meetings 8 3 6			
Attendance 2 5 0			
Stationery and Postages .. 3 0 0			
Circulars for Meetings 8 9 0			
Insurance 0 16 0			
Collector's Commission .. 3 8 3			
Do. Receipt Books.. 1 16 0			
	63	7	9
III.—PROPERTY.			
Further charges for arranging Library and Catal. .. 10 0 0			
Books purchased, to complete sets 1 13 0			
	11	13	0
IV.—MISCELLANEOUS.			
Petty Expenses (Assistant Sec.)	9	1	8
Total Expenditure	£179	13	8

(Signed) F. J. BAILEY, J. R. HUGHES, } *Auditors.*

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FINIS.

T. BRAKELL, PRINTER, COOK STREET, LIVERPOOL.